

RESOLUTION NO. 99-17


BE IT HEREBY RESOLVED by the Board of Directors of CALAVERAS COUNTY WATER DISTRICT that, pursuant to all of the terms and provisions of the Watershed Management and Program Plan for the CalFed Bay-Delta Program, application(s) be made to obtain grant/loan funding for District-wide projects related to watershed management and water quality issues relative to the Calaveras, Stanislaus and Mokelumne Rivers, said funds to supplement those received from the State Water Resources Control Board.

FURTHER RESOLVED that the General Manager of Calaveras County Water District is hereby authorized and directed to prepare necessary data, make investigations, sign, certify and submit such application(s) as appropriate.

PASSED AND ADOPTED this 12th day of April, 1999, by the following vote:


AYES: Directors Weinkle, Geiszler, Rollins, Fonceca and Deem
NOES: None
ABSENT: None
ABSTAIN: None

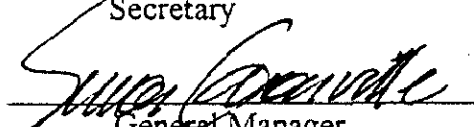
CALAVERAS COUNTY WATER DISTRICT



President

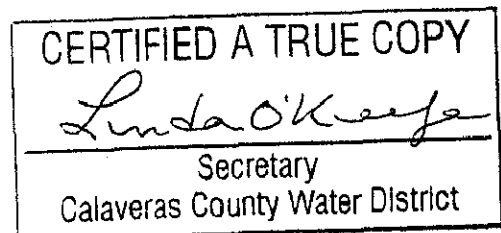
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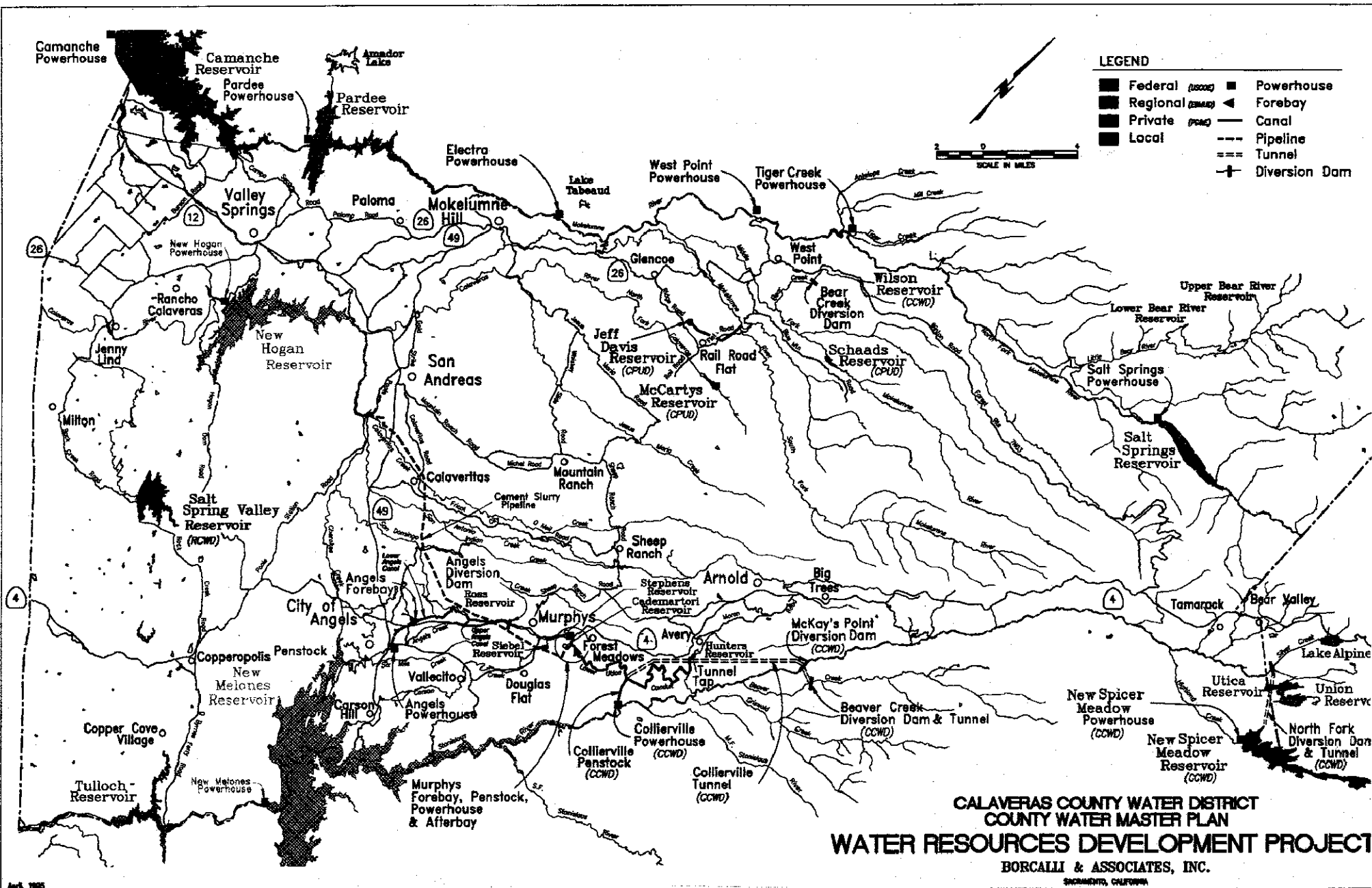


Secretary


General Manager

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April, 1995

Attachment "C"

1. Calaveras River Watershed Sanitary Survey - A December 1995 report prepared by CCWD and Stockton East Water District. The report includes analyses of (1) Watershed and Supply Systems, (2) Potential Contamination Sources in the Watershed, (3) Watershed Control and Management Practices, (4) Water Quality, (5) Conclusions and Recommendations. There were 19 recommendations including, "To facilitate the implementation of each of these recommendations, particularly those that include coordination with other government agencies, the districts should continue to meet and coordinate their efforts to reduce the potential sources of contaminants to the watershed. The districts can do this by forming an organization with this purpose, or by becoming involved in an existing organization that has the same or similar objectives. One opportunity to do the latter is to take advantage of the existing Calaveras/Stanslaus River Association."

Figures from the Sanitary Survey are provided as attachments:

- Attachment C-1 - Figure 1-1, Calaveras River Watershed and Location Map
 - Attachment C-2 - Figure 3, Potential Point Sources of Contamination in the Calaveras River Watershed
 - Attachment C-3 - Figure 4, Potential Non-point Sources of Contamination in the Calaveras River Watershed
2. Stanislaus River Watershed Sanitary Survey - A December 1995 report prepared for the CCWD, Stockton East Water District, U.S. Forest Service, Tuolumne Utilities District, Union Public Utility District, City of Angels Camp, and Knight Ferry Community Services District. The Stanislaus River Watershed is located in Tuolumne, Calaveras, Stanislaus, and Alpine Counties. There are 12 sub-watersheds within the Stanislaus River Watershed, upstream of the Knight Ferry Water Treatment plant (WTP).

The sanitary survey has provided good background information on the Stanislaus River Watershed and similar information reference above for the Calaveras River. The objectives of the Stanislaus River Watershed survey was to (1) fulfill the sanitary survey requirement of the DHS Surface Water Treatment Regulations, (2) examine and describe conditions in the watershed which affect water quality, (3) identify watershed management practices that will reduce the existing and future contaminant loads on the watershed, (4) examine and relate water quality data to conditions in the watershed, and (5) determine the appropriate levels of removal of Giardia and viruses (Attachment "C-4").

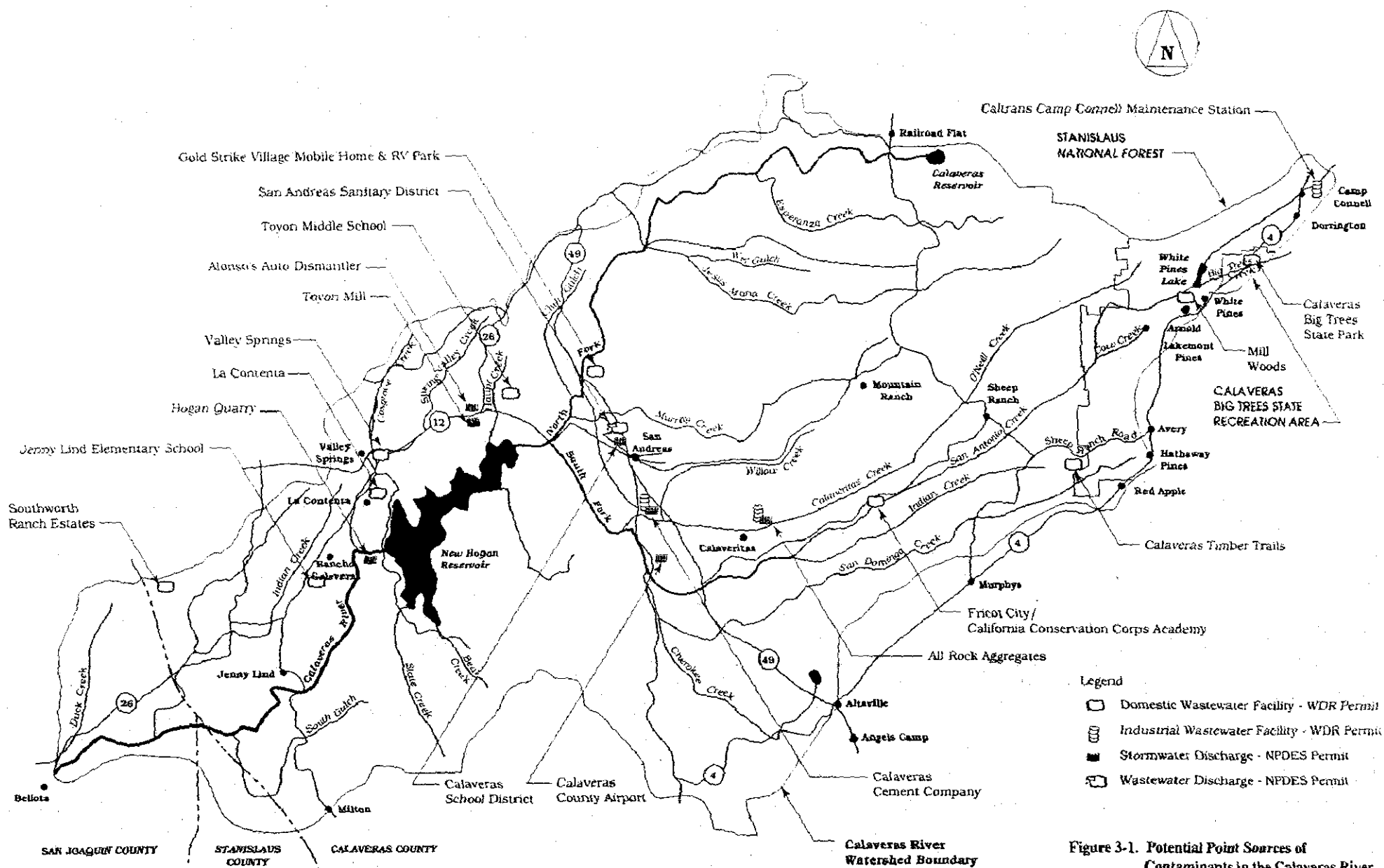
3. Upper Mokelumne River Watershed Sanitary Survey - A November 1995 report prepared for CCWD, Amador Water Agency, Calaveras Public Utility District, and East Bay Municipal Utility District. The Mokelumne River Watershed lies northeast of the northern Sacramento-San Joaquin Delta into which it flows, and approximately 40 miles southeast of Sacramento the study area, consisting of that portion of the watershed above Pardee Reservoir, encompasses parts of Amador, Calaveras, and Alpine Counties.

The primary objectives of the Upper Mokelumne River Watershed Sanitary Survey were:

- Develop the data necessary to compile with the State of California Title 22, Code of Regulations, Section 64665 which requires all water suppliers to conduct a sanitary survey of their watershed(s) at least once every five years.
- Survey and assess the sources of microbiological contaminant loads at the raw water diversion and identify other potential sources of water purity degradation including trace metals, organic compounds, and other contaminants.
- Review existing watershed control and management practices and make general recommendations for corrective actions (not site specific) that are economically feasible and within the legal authority of the water purveyors who divert from the watershed.
- Develop EBMUD's GIS database for the watershed by capturing the data needed to develop the watershed sanitary survey and for EBMUD to develop geographic map displays and compatible database storage media.

(Attachment "C-5")

4. Calaveras River Watershed Planning - SEWD and CCWD have received a \$200,000 Safe, Clean, Reliable Water Supply Act (Proposition 204) grant from the State Water Resources Control Board (SWRCB) for Calaveras River Watershed Planning. The project, which is in its initial stage, is a watershed management/rehabilitation planning project. The project will support a reduction in the presence of drinking water contaminants. In addition, the project will include riparian habitat issues along the stream and watercourses in the watershed, and will include recommendations for improvement of factors that may cause erosion in the watershed. The project will also provide a preliminary evaluation of watershed computer models and an education outreach and public participation.



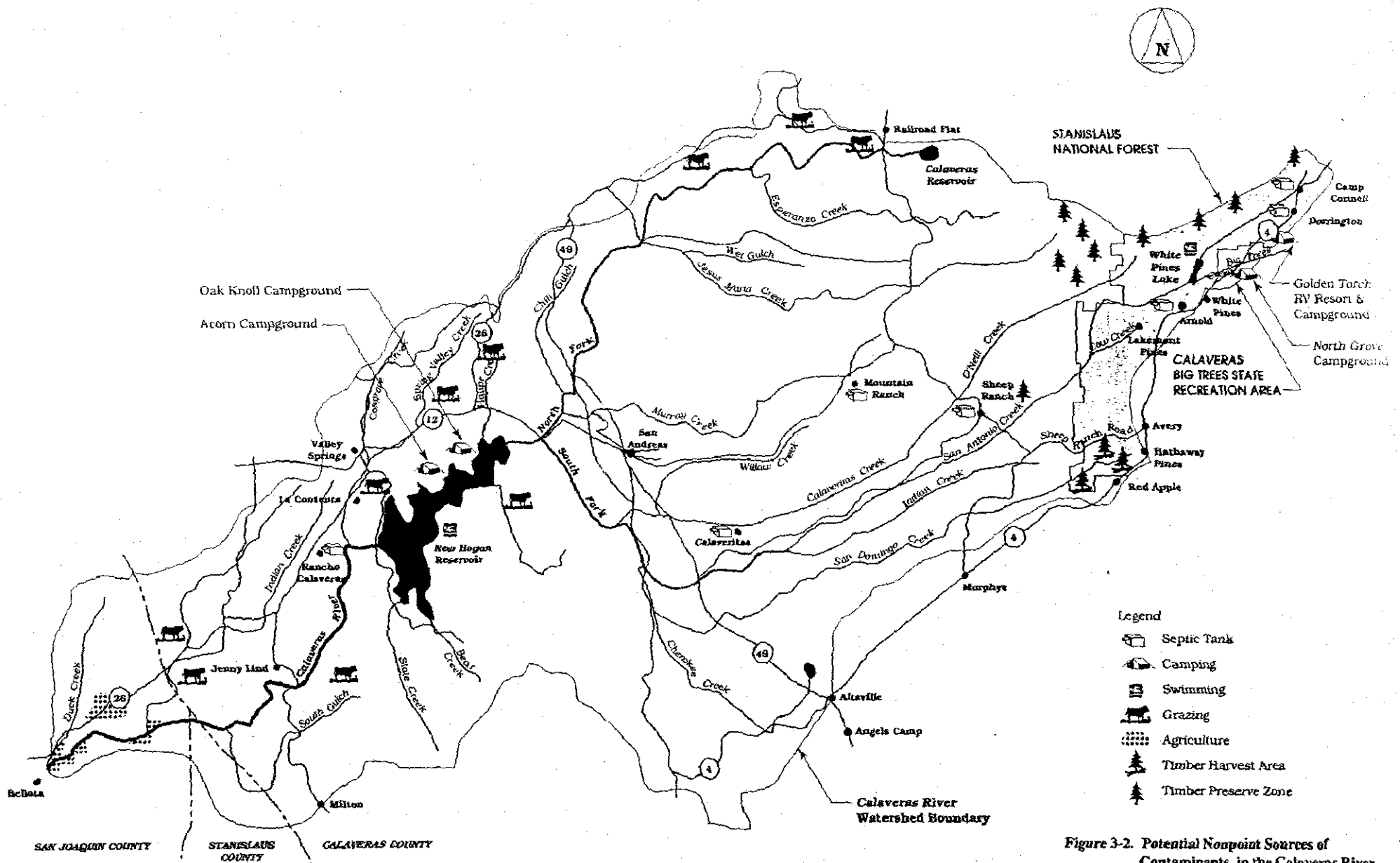


Figure 3-2. Potential Nonpoint Sources of Contaminants in the Calaveras River Watershed

Attachment "C-3"

Figure 3. Potential Nonpoint Sources of Contamination in the Calaveras River

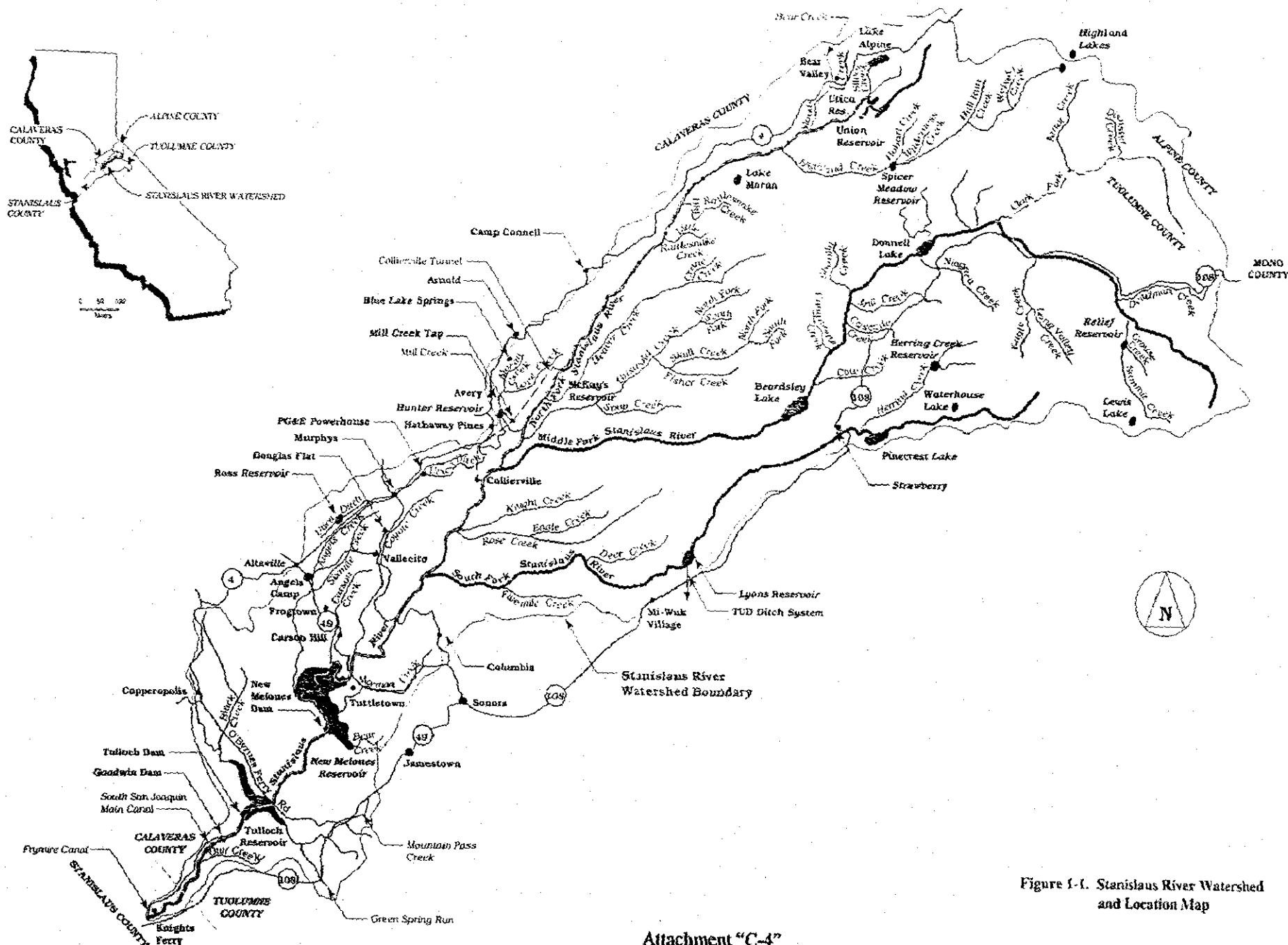


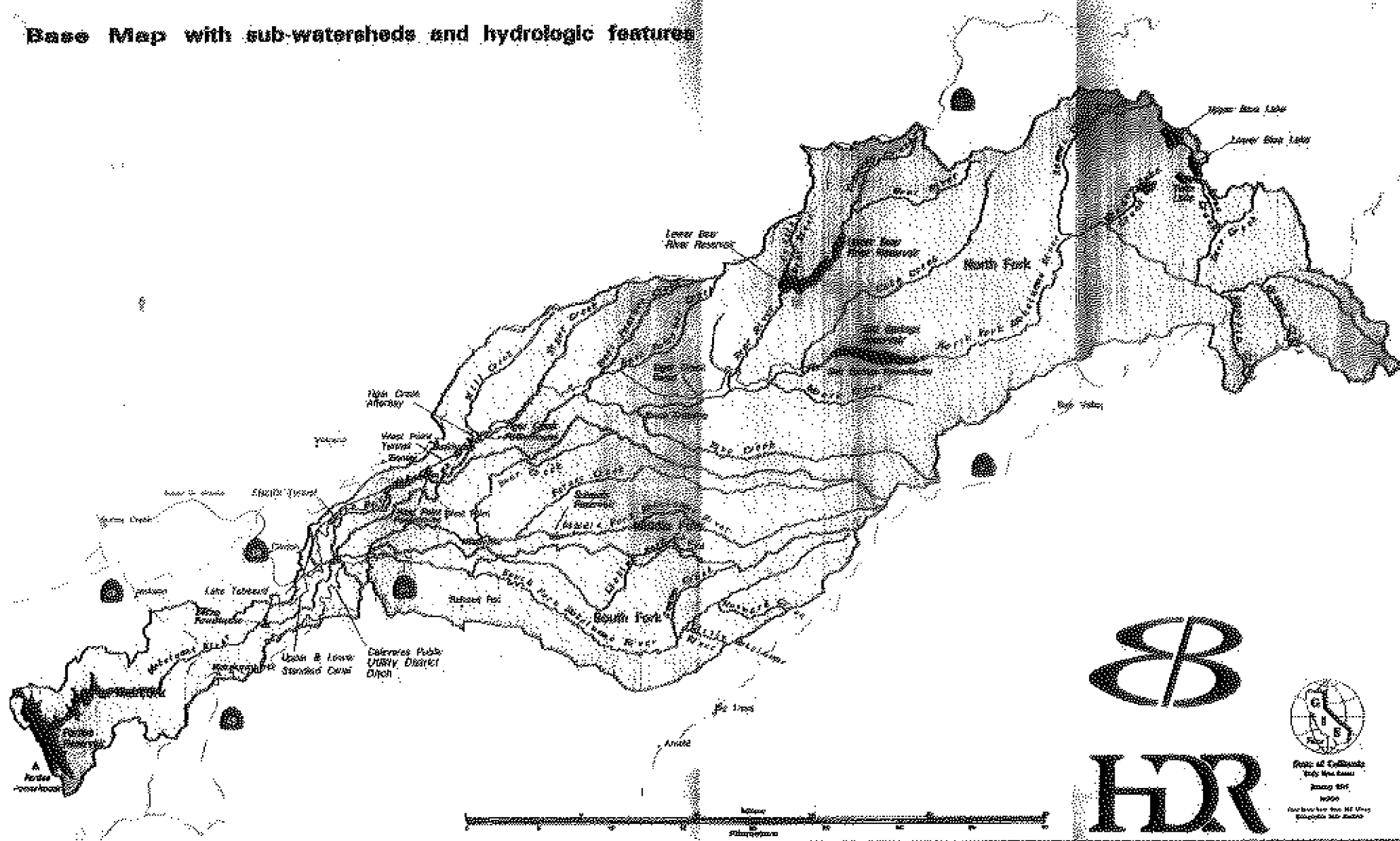
Figure 1-1. Stanislaus River Watershed and Location Map

Attachment "C-4"
Stanislaus River Watershed and Location
Map

Upper Mokelumne Watershed

Figure II - 1

Base Map with sub-watersheds and hydrologic features



Attachment "C-5"
Upper Mokelumne Watershed
Base Map with sub-watersheds and
hydrologic features

**PROJECT APPLICATION TO THE
STATE WATER RESOURCES CONTROL BOARD
SAFE, CLEAN, RELIABLE WATER SUPPLY ACT (PROPOSITION 204)
DELTA TRIBUTARY WATERSHED PROGRAM (DELTA PROGRAM)**

WATERSHED PLANNING - FOR CALAVERAS RIVER WATERSHED

**CALAVERAS RIVER
EAST SAN JOAQUIN COUNTY/WEST CALAVERAS COUNTY, CALIFORNIA**

Submitted by:

**COUNTY OF SAN JOAQUIN
Board of Supervisors**

August 14, 1998

PROJECT APPLICATION TO THE
STATE WATER RESOURCES CONTROL BOARD
SAFE, CLEAN, RELIABLE WATER SUPPLY ACT (PROPOSITION 204)
DELTA TRIBUTARY WATERSHED PROGRAM (DELTA PROGRAM)

COVER PAGE

APPLICANT: San Joaquin County

ADDRESS: P.O. Box 1810 1810 East Hazelton Avenue, Stockton, California 95201

PROJECT DIRECTOR: Ed Steffani

Telephone: (209) 948-0333

PROJECT TITLE: Watershed Planning - Calaveras River Watershed

APPLICANT ELIGIBILITY:

- (a) County Government: yes
- (b) Joint Powers Authority
with County Government: no
- (c) Local Public Agency not
represented by County Government: no

PROJECT ELIGIBILITY:

The San Joaquin County Board of Supervisors on January 6, 1998, authorized the Chairman to apply to the State Water Resources Control Board (SWRCB) for Proposition 204 funding for projects proposed and managed by the Stockton East Water District (SEWD).

The proposed project is a watershed management and rehabilitation project within the delta tributary watershed. On July 30, 1998 the Calaveras County Administrative Officer provided authorization for the Calaveras County Water District (CCWD) to participate in the project and address issues pertaining to the Calaveras River watershed basin. Other relevant agencies and stakeholders will assist with proposed project activities. Activities will include the development of watershed rehabilitation plans and other planning functions (including a water quality monitoring component) designed to resolve actual or potential water quality issues as identified in Section 3.b.(2) of the Request for Proposal (RFP). Attachment A describes how the proposed project will address the "Principles for Watershed Restoration" and "Principles of Watershed Community Involvement" (Attachments 1 and 2 of the RFP). The proposed project will result in a reduction in the presence of drinking water contaminants and increase the yield of water availability. In addition, the proposed project will include riparian habitat issues along streams and watercourses in the watershed and will result in an improvement of overall forest health by reducing factors that may cause erosion in the watershed. Letters of support from the Calaveras County Administrative Officer, California Department of Forestry and Fire Protection and from the U.S. Forest Service are included with the cover letter.

FISCAL SUMMARY:

Total Delta Program Funds Requested: \$ 200,000.00

SUMMARY PROJECT DESCRIPTION:

Current Situation. This is the second phase in the rehabilitation of the Calaveras River watershed. The first phase was the preparation of the Calaveras River Watershed Sanitary Survey (SEWD/CCWD December 1995). This proposed project will include evaluating and implementing conclusions and recommendations presented in the SEWD/CCWD December 1995 report.

The Calaveras River provides drinking water for the Stockton Metropolitan Area and portions of Calaveras County. Water quality problems have resulted in the degradation of this drinking water source. The SEWD/CCWD December 1995 survey identified the need for a Calaveras River watershed management plan related to the following drinking water concerns:

- Geosmin and Methylisoborneol (MIB)
- *Cryptosporidium* and *Giardia*
- Impact of recreation on water supply (White Pine Lake)
- Pesticides and nitrogen
- Turbidity from forest harvest practices
- Septic tank effluent discharge
- Nonpoint/stormwater contaminants
- Mine drainage

Project Framework and Objectives. A watershed management plan will be prepared for the Calaveras River watershed (Attachment B, Figure 1). The watershed management plan will: 1) establish water quality monitoring, 2) analyze data to determine water quality impact, 3) evaluate projects that improve water quality and increase water supply, and 4) evaluate watershed computer models for use on the Calaveras River watershed. Attachment B includes figures that represent current activities on the Calaveras River. Figure 2 represents the Calaveras River Hydrologic System, Figure 3 indicates the Potential Point Sources of Contaminants in the Calaveras River Watershed, and Figure 4 indicates the Potential Nonpoint Sources of Contaminants in the Calaveras River Watershed. The project will improve water quality which will directly benefit the Stockton Metropolitan Area, Calaveras County, and landowners along the Calaveras River.

Community Involvement. Strategic planning for this project will be undertaken by the Calaveras River Committee. This will be a voluntary organization of landowners (including the Calaveras County Grange), government agencies, and interested parties throughout the watershed, working to address issues of mutual concern related to the Calaveras River. Community involvement in this project will be ensured through coordination by the Project Coordinator and the Calaveras River Committee throughout the project.

BUDGET SUMMARY SHEET

STATE WATER RESOURCES CONTROL BOARD SAFE, CLEAN, RELIABLE WATER SUPPLY ACT (PROPOSITION 204) DELTA TRIBUTARY WATERSHED PROGRAM

AGENCY: Stockton East Water District/Calaveras County Water District

	Total Funds Requested
A. Personnel Services	\$35,000.00
B. Operating Expenses	
C. Property Acquisitions - Equipment	
D. Professional and Consulting Services	160,000.00
E. Construction Expenses	
F. Administration	<u>5,000.00</u>
TOTAL BUDGET	\$200,000.00

Description of Requested Funds:

- A. Personnel Services: Expenses for personnel services consist of one year's salary for a part-time Project Coordinator. This includes \$10,000.00 for a California State University Fresno (CSUF) "clinic program" under the direction of the Dean of Engineering, CSUF, to provide "real world" watershed management experience to students.
- B. Operating Expenses: This is a planning proposal, therefore minimal operating expenses are anticipated to occur. Operating expenses will be offset through matches from other sources (i.e., local agencies, individuals) sharing office space, and providing meeting facilities.
- C. Property Acquisitions: Equipment, electronic data processing tools, and portable assets will primarily be obtained through sharing property owned by other agencies, corporations, and individuals. The project will utilize computers and office equipment owned by the project applicant to the maximum extent possible.
- D. Professional and Consulting Services: This will include private watershed management consultants.
- E. Construction Expenses: At this time there are no known construction expenses. Construction expenses could be related to future projects.
- F. Administration: Personnel expenses consist of one year's cost for project and contract administration. Fifty percent of the costs will be incurred by the grant recipients.

PROJECT APPLICATION

1. Project Name: Watershed Planning - Calaveras River Watershed
2. Lead Agency: Stockton East Water District
Address: 6767 East Main Street, P.O. Box 5157, Stockton, CA 95205
3. Project Description: Provide a description of the project, including a problem statement, specific water quality goals involved, proposed actions, and specific activities and elements to be funded.

Problem Statement

Water degradation is occurring in the Calaveras River watershed, adversely impacting drinking water quality. Specific restoration projects have been identified to mitigate water quality problems; however an overall watershed approach is necessary to maximize their effectiveness. Specific restoration projects identified include the *Erosion Control on the Calaveras River Project Application* (Application Number 20) and the *Reclamation and Rehabilitation of Mining Ponds on the Calaveras River Project Application* (Application Number 21), each submitted on January 9, 1998 under Proposition 204 by San Joaquin County.

A watershed sanitary survey was conducted by SEWD/CCWD on the Calaveras River watershed in December 1995. This survey identified potential adverse impacts to the watershed as presented below:

- Geosim and MIB
- *Cryptosporidium* and *Giardia*
- Contaminants from recreation
- Pesticide and nitrogen contamination
- Erosion resulting from forest harvest practices and fireburn areas
- Septic tank failures
- Contaminants in stormwater
- Contaminants from inactive and abandoned mines, such as acid mine drainage

In addition to water degradation increased water demand in the Calaveras River watershed has resulted in the need to identify new drinking water sources.

Specific Water Quality Goals

Geosmin. Geosmin can be detected by taste in water at concentrations as low as 5 nanogram/liter (ng/l). The current levels of geosmin found in drinking water at the SEWD plant in the Calaveras River watershed are an average of 20 ng/l, with concentrations up to 80 ng/l having been detected. Geosmin and MIB cause a significant taste and odor problem in drinking water, the result of blue-green algae and the chemical compounds they produce. Geosmin and MIB produce earthy-musty tastes and odors and can be detected at extremely low concentrations (less than 10 ng/l). Taste and odor causing compounds are not regulated in drinking water but can present a concern due to impacts on water palatability and public perception of water quality. One of the specific water quality goals for this project is to reduce geosmin levels to below 5 ng/l.

Cryptosporidium and Giardia. *Cryptosporidium* and *Giardia* are enteric protozoa which cause gastrointestinal illness and even death in some cases. *Cryptosporidium* is a protozoan that travels in the form of an oocyst with a protective outer shell. *Giardia* is also a protozoan which travels in the environment as a cyst. *Cryptosporidium* and *Giardia* are resistant to chlorine disinfection. Federal and California Surface Water Treatment Rules require filtration as a treatment technique. The effectiveness of the filtration technique is partially measured by turbidity removal performance. The U.S. Environmental Protection Agency (EPA), August 1997, State Source Water Assessment and Protection Program Guidance states on page 4-5, "Assessments in conjunction with other watershed protection measures could identify potential threats and help such systems maintain multiple barriers against microbial contamination and good source water quality protection..."

The SEWD/CCWD December 1995 survey has identified problems with *Giardia* and viruses at the Sheep Ranch Water Treatment Plant (WTP). In 1995, the Sheep Ranch WTP was shut down due to high turbidity levels. Based on total coliform data for the WTP in the Calaveras River watershed, the report recommended that modifications to the WTP raw water monitoring be considered. Figure 2 in Appendix B, presents a schematic of the Calaveras River hydrologic system for water supply.

Contaminants from Recreation. White Pine Lake is located at the upstream end of San Antonio Creek in the northeastern portion of the Calaveras River watershed. The lake is owned and operated by the CCWD. It is a multipurpose lake providing water supply, incidental flood control, and recreational benefits. The SEWD/CCWD December 1995 survey included a recommendation that the CCWD monitor water being discharged from White Pine Lake. Under this project, a watershed study would be performed which would include the development of a proposal to determine if recreational activities are elevating bacteriological counts in the raw water in San Antonio Creek. Monitoring would target peak recreation periods. The data generated from White Pines outlet monitoring would be evaluated with the raw water total fecal coliform monitoring that is collected at the Sheep Ranch WTP. If high coliform counts in the White Pine Lake outlet corresponds to high counts at the WTP, the recreational activities are a likely source. New Hogan Reservoir would also be included in this study. Methyl tertiary butyl ether (MTBE) may also be present in the water at New Hogan Reservoir due motor boats operating on the lake.

Pesticide and Nitrogen Contamination. A recommendation of the SEWD/CCWD December 1995 survey noted that two herbicides used by the U.S. Forest Service, glyphosate and 2,4-D are regulated under Title 22, California Code of Regulations. It was recommended that CCWD review the management practices that the U.S. Forest Service implements in conjunction with the use of these herbicides, including downstream monitoring of these constituents.

The use of pesticides within the Calaveras River watershed would be reviewed under this proposed project in accordance with the California Environmental Protection Agency (CalEPA) February 1997 report, California Pesticide Management Plan for Water Quality, An Implementation Plan for the Management Agency Agreement between the Department of Pesticide Regulation and the SWRCB.

High nitrogen concentrations in the lower levels of the Calaveras River watershed are believed to be the cause of algae blooms. The water quality goal for nitrogen is 10 milligrams per liter (mg/l).

Erosion. Reference is made to the "Management Agency Agreement between the Water Resources Control Board, the Board of Foresters, and the Department of Forestry and Fire Protection" signed by those three agencies in February 1988. This agreement and a 1981 Management Agreement between the SWRCB and the US Forest Service established a system of Best Management Practice

(BMP) for protection of water quality from non-point sources of pollution. Important watershed management issues for forest practices include: 1) water quality protection, 2) riparian area management, 3) maintenance and improvement of watershed conditions, and 4) water quantity management. Private and commercial logging activities in the Calaveras River watershed are regulated by the California Department of Forests and Fire Protection. The Stanislaus National Forest, which is managed by the U.S. Forest Service, makes up a major portion of the Sheep Ranch WTP watershed.

A Calaveras River watershed management plan will be developed under this proposed project and will include a review of forest practices and water quality within the Calaveras River watershed. This will involve working with all appropriate agencies.

Erosion on the Calaveras River has resulted in high turbidity levels, degrading drinking water. Turbidity concentrations are monitored on a daily basis at the SEWD diversion from the Calaveras River. The average concentration is approximately 3 to 4 Nephelometric Turbidity Units (NTU). During erosion events on the Calaveras River, concentrations up to 100 NTU have been recorded, severely impacting drinking water quality. The drinking water standard for turbidity is 1 NTU for the SEWD. The specific water quality goal of this project is to obtain one NTU or less during erosion events.

Septic Tanks. The SEWD/CCWD December 1995 survey indicated problem areas related to septic tanks. The failure rate of septic tanks in western Calaveras County has been unusually high, due to local site conditions. The town of Arnold, in Calaveras County, has experienced a high septic tank failure rate which directly impacts the Sheep Ranch WTP. In response to this problem, Calaveras County recognized it needs a more engineered system rather than traditional septic systems. Calaveras County recognizes, however, that the installation of more sophisticated systems will require more maintenance and there is concern that these systems will also eventually fail. This proposed watershed management project would include working with the Calaveras County Public Health Department to evaluate septic tank failures and the potential impact to drinking water and public health. This will include a community outreach program to produce information on proper septic system maintenance.

Contaminants in Stormwater. The SEWD/CCWD December 1995 study indicated that many industries operating within the watershed have not yet complied with the SWRCB Industrial Stormwater General Permit. The SWRCB's general permit was revised on April 17, 1997. New facility operations seeking coverage under the General Permit are required to submit a Notice of Intent (NOI) and a first annual fee at least 14 days prior to commencing industrial activities. Facility operations previously covered by the expired General Permit (No. 91-013-DWQ) were required to submit a special NOI form (dated May 1997). Under the proposed watershed management plan, larger industries or those with significant source of contaminants, which are known not to have complied with the permit, will be contacted by project staff. SEWD and CCWD will report any significant non-compliance to the CRWQCB. Figures 3 and 4 in Appendix B provide information on Point Sources and Nonpoint Sources of Contaminant in the Calaveras River watershed.

Contaminants from Inactive and Abandoned Mines. The SEWD/CCWD December 1995 survey included information on approximately 250 historical mines in Calaveras County within the Calaveras River watershed. In cooperation with the State of California Abandoned Mine Task Force led by the Department of Conservation, a mine waste inventory will be developed under this proposed project. The Central Valley RWQCB Watershed Management Initiative has identified acid

mine drainage as a problem area. The watershed management plan will provide an overview of the mine waste problems within the Calaveras River watershed.

Proposed Actions and Specific Activities and Elements to be Funded.

The following have been identified as proposed actions:

- 1) \$140,000.00 to develop a watershed management plan. There is a need on the Calaveras River to conduct an overall watershed assessment to better understand water quality and aquatic habitat trends, existing and potential problems, and opportunities for enhancement. Watershed conditions currently existing on the Calaveras River have resulted from a variety of natural and human related factors. It is important to acquire a better understanding of these factors to develop a watershed management strategy. The proposed project would conduct preliminary field studies on seven special areas: 1) geosmin and MIB, 2) *Cryptosporidium* and *Giardia*, 3) contaminants from recreation at New Hogan Reservoir and White Pine Lake, 4) pesticide and nitrogen contamination, 5) erosion resulting from forest harvest practices including fireburn areas, 6) septic tank failures, 7) contaminants in stormwater, and 8) contaminants from inactive and abandoned mines. The assessment will be performed in cooperation with ongoing work by public land management agencies, other resource agencies, and existing and proposed monitoring programs.
 - 2) \$20,000.00 to evaluate water quality monitoring plans currently in use, develop additional monitoring plans to monitor and analyze existing watershed water quality data.
 - 3) \$10,000.00 to increase water supply. The use of mining ditch water will be evaluated to determine if this water can be used to supply water to the CCWD, resulting in the expansion of the existing water supply therefore reducing water demand on the Calaveras River.
 - 4) \$10,000.00 to evaluate watershed computer models for possible use on the Calaveras River watershed. Several computer models have been created to assist in watershed management. These models will be evaluated for use on the Calaveras River watershed.
 - 5) \$20,000.00 for education outreach and public participation programs. The Calaveras River watershed management plan will promote watershed stewardship through educational outreach programs with the local communities. This includes \$10,000.00 for participation of a CSUF student project team.
4. Cooperating Agencies: Identify any formal agreements with other organizations cooperating on this project.

Agency Name: U.S. Forest Service

Role/Contribution to Project: Provide consultation relative to watershed activities.

Contact Person: Ben L. Del Villar

Phone: (209) 553-3671

Agency Name: California Department of Forestry and Fire Protection
Role/Contribution to Project: Provide consultation on this project.
Contact Person: William E. Shultz
Phone: (209) 754-3831

Agency Name: Department of Water Resources (DWR)
Role/Contribution to Project: Coordinate with DWR's Watershed Management Program.
Contact Person: Carl Hauge
Phone: (916) 327-8861

Agency Name: California Department of Fish and Game (CDFG), Inland Fishery Division
Role/Contribution to Project: Provide consultation on this project.
Contact Person: Nick Villa
Phone: (916) 657-4227

Agency Name: Central Valley Regional Water Quality Control Board
Role/Contribution to Project: Provide consultation on this project.
Contact Person: Sue Yee
Phone: (916) 255-3098

Agency Name: California Department of Health Services, Drinking Water Field Operations Branch - Stockton Office
Role/Contribution to Project: Provide consultation on source water assessment and protection.
Contact Person: Joe Spano
Phone: (209) 948-3816

Agency Name: CSUF
Role/Contribution to Project: Student Team Project
Contact Person: Karl E. Longley, Dean, School of Engineering and Computer Science
Phone: (209) 278-2500

5. Attach a map depicting the project area.

Figure 1, in Attachment B, is a Calaveras River watershed and location map.

6. Is this project part of a phased project? Yes XXX No
If yes, explain and identify the priority of the project in the larger effort.

This is the second phase in the rehabilitation of the Calaveras River watershed. The first phase was the preparation of the SEWD/CCWD's *Calaveras River Watershed Sanitary Survey Final Report* completed in December 1995. This proposed project will include evaluating and implementing conclusions and recommendations presented in the SEWD/CCWD December 1995 report.

7. What are starting and ending dates for the activities proposed for funding? Note that the funds can be used over a three year period beginning no sooner than January 1999.

Project Start date Jan. 1, 1999 End date: Dec. 31, 1999

8. Do other resources management plans (e.g. general plans, timber harvest plans, etc.) govern the project area?

Yes XXX No

Explain the relationship of the project to these other plans.

The proposed project is situated primarily in Calaveras County, with small portions in San Joaquin and Stanislaus counties. The proposed project is governed by the Calaveras County General Plan, the San Joaquin County General Plan, and the Stanislaus County General Plan. The U.S. Forest Service directs the management of the Stanislaus National Forest which encompasses all national forest land within the watershed.

9. Summarize actions that have been accomplished to date to address the problem(s) e.g. past monitoring, planning, implementation phases?

The *Calaveras River Watershed Sanitary Survey Final Report* was completed in December 1995 to comply with the California Department of Health Services' Surface Water Treatment Regulations. Activated granular carbon was used at the water treatment plant to absorb the geosmin. This solution was partially successful, the activated granular carbon required frequent changing to remain effective. This made activated granular carbon treatment of water for geosmin prohibitively expensive.

The installation of dikes to block off water flow between stagnant ponds and the main river channel was an additional action. This solution has only met with limited success, with contaminated water continuing to travel through a porous medium of rock, gravel and sand between the ponds and the river channel. During high water events, water flows over the top of the dike system.

A property owner has benched and rip rapped approximately 360 linear feet of river bank in an effort to control soil erosion on the Calaveras River. Environmentally sensitive soil erosion control projects will be evaluated as part of the proposed watershed management plan.

10. Describe the educational and/or outreach element of the project.

The proposed Calaveras River watershed management plan will promote watershed stewardship through educational outreach programs with the local communities. A CSUF study team will participate in watershed planning activities as part of an educational outreach program.

A public notification will be issued, a fact sheet will be prepared, and a public meeting will be held prior to implementation of the project to inform the public about the project, and to receive community input. The proposed project would include working with the Calaveras County Health Department to inform the public on potential septic tank health effects.

11. Describe the volunteer monitoring element of the project (if applicable).

The SEWD and Calaveras County will monitor water quality at their water treatment plants to determine the effectiveness of the project. Pre- and post-project water quality data will be gathered and reviewed.

12. If there is an NPDES permit required for this project area, describe the relationship of the project to the permit. In particular, to be eligible for these funds you must be able to describe how the funded activity is not required by an existing NPDES permit.

No NPDES permit is required for any of the activities included in this proposal.

13. Outline milestones of project progress and how the project will be evaluated.

In general, the first milestone of the eight projects will be the completion of a watershed management plan. The second milestone will be to establish monitoring plans and analyze existing data to determine water quality impact. The evaluation of mining ditch water to determine its potential use as supply water to the CCWD, thereby expanding the existing water supply and alleviating water demand on the Calaveras River, will be the third milestone. A fourth milestone will be to evaluate watershed computer models for use on the Calaveras River. The fifth milestone will be the education outreach programs.

A Technical Advisory Committee will be established approximately one month after project funding is approved to evaluate the project. It is anticipated that this advisory committee would consist of representatives from the California Department of Forest and Fire Protection, California Department of Fish and Game, CRWQCB, State Department of Health Services, City of Stockton, California Water Service, San Joaquin County, Calaveras County, Army Corp of Engineers, U.S. Forest Service, and the EPA.

In addition to the Technical Advisory Committee, a stakeholders group consisting of representatives of land owners, the Calaveras County Grange, California Sports Fishing Alliance, Trout Unlimited, and other individuals or groups that may be affected by the proposed project will be established to evaluate the project. These groups will evaluate the project until the project is completed.

14. What capability or commitments do you have to ensure that the project will be completed?

SEWD, CCWD, and San Joaquin and Calaveras Counties are committed to providing a leadership role in improving water quality for the customers and citizens they serve. This includes improving water quality on the Calaveras River, a major water supply source, with appropriate remediation projects identified as a part of the watershed planning effort. The project director, Ed Steffani, is the General Manager of the SEWD, and therefore, directly accountable to the customers served by the SEWD. Ed Steffani, General Manager of SEWD has ultimate responsibility for completion of the project within San Joaquin County. Simon Granville, General Manager, CCWD has ultimate responsibility for the project within Calaveras County.

15. Describe anticipated future work. Describe what commitments to implementing the plan currently exist.

The SEWD and CCWD are committed to restoring fish and wildlife habitat on the Calaveras River, restoring the depleted aquifer basin in the region, and improving water quality on the Calaveras River.

Anticipated future work will include the implementation of watershed restoration projects identified as part of this proposed watershed management plan. Future projects may include the *Erosion Control on the Calaveras River Project* and the *Reclamation and Rehabilitation of Mining Ponds on the Calaveras River Project*.

16. Describe how the proposed project addresses the "Principles for Watershed Restoration" and "Principles of Watershed Community Involvement" (Attachments 1 and 2 of the RFP).

See responses in Attachment A.

ATTACHMENT A

PRINCIPLES FOR WATERSHED RESTORATION
AND
PRINCIPLES OF WATERSHED COMMUNITY INVOLVEMENT

PRINCIPLES FOR WATERSHED RESTORATION

- a. **Restoration must be consistent with watershed level assessment, analysis and evaluation; restoration includes protection of existing healthy conditions.** The proposed watershed management plan consists of watershed level assessment, analysis and evaluation, and restoration to protect existing healthy conditions.

The project will be conducted in accordance with the regional, state, and national emphasis on watershed planning as follows:

One of the guidance documents to be used is the August 1995 U.S. Environmental Protection Agency (EPA) report EPA 841-R-95-004, Watershed Protection: A Statewide Approach. The approach in the report can be summarized as follows:

- Targeting priority problems
- A high level of stakeholder involvement
- Integrated solutions that make use of the expertise and authority of multiple agencies
- Measuring success through monitoring and other data gathering

A second guidance document is the Clean Water Action Plan: Restoring and Protecting America's Water, EPA and U.S. Department of Agriculture, February 14, 1998. The cover letter of this guidance document signed by Carol Browner, Administrator, EPA and Dan Glickman, Secretary, U.S. Department of Agriculture includes the following statement: "A key element in the Action Plan is a new cooperative approach to watershed protection in which state, tribal, federal, and local governments, and the public first identify the watersheds with the most critical water quality problems and then work together to focus resources and implement effective strategies to solve those problems. The Action Plan also includes new initiatives to reduce public health threats, improve stewardship of natural resources, strengthen polluted runoff controls, and make water quality information more accessible to the public."

The outline to be followed is from chapter three, *America's Watersheds: The Key to Clean Water*, which includes the following sections on Unified Watershed Assessments, Build Strong Partnerships to Speed Restoration and Protection, and Watershed Management Framework.

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- Increased Point Source Control
- Nonpoint Source Control Activities
- Initiate Assessments in Watersheds where no Assessment has Occurred
- Initiate Assessments for Groundwater

- b. **Restoration should assure the preservation of existing healthy conditions by removing known threats and protection from future threats.** Known and potential threats will be identified and evaluated as part of the watershed management plan. These threats which will be addressed include pesticides, septic tanks, abandoned mines, etc.

- c. **Restoration must include eliminating continuing causes of watershed degradation.** The focus of the watershed management plan will be the elimination of continued causes of watershed degradation. Examples of causes which will be addressed are contaminants in stormwater, and erosion from forest harvest practices and fireburn areas. Calaveras County Water District (CCWD) has identified a fireburn area which is of major concern which will be addressed.
- d. **Restoration should be staged, moving outward and downward generally from the top of the watershed, from core healthy or restored areas; exceptions are limited to work designed to link core health areas.** The watershed management plan will evaluate potential watershed restoration projects outward and downward from the top of the watershed; core healthy areas will be identified as part of the watershed management plan. The White Pine Lake Water Quality Study is an example of a study to be conducted at the top of the watershed. In addition, many of the 250 historic mines identified in the Calaveras River Watershed Sanitary Survey, (Stockton East Water District (SEWD)/CCWD December 1995) are near the top of the watershed.
- e. **Restoration projects should be prioritized within each watershed for effectiveness on the basis of maximum ecological benefit and on the benefits to sustainable local community economics and/or revitalization.** The proposed watershed management plan will emphasize maximization of ecological benefits to the Calaveras River watershed by identifying those areas where potential ecological damage may occur or is currently occurring. One situation to be addressed is the banks of the Calaveras River. The problem has been identified as part of the previous submittal Erosion Control on Calaveras River, by San Joaquin County. The current project will include an overview evaluation of Calaveras River erosion problems from the New Hogan Dam to SEWD intake at Belota.

The project has an ecological and economic benefit. Erosion is currently destroying valuable orchard land along the river. The rate payers of the SEWD are paying for the additional treatment cost. Also, from a health perspective, the additional turbidity compounds the existing problem with *Cryptosporidium* and *Giardia*. The availability of a safe drinking water supply is essential to sustaining local community economics.

- f. **Restoration and stewardship decisions should be based on explicit objectives and benchmarks from an approved Watershed Restoration Strategic Plan.** The proposed project will include a Watershed Restoration Strategic Plan. The project will be using the 1998 update of the Central Valley RWQCB's Watershed Management Initiative as part of the projects Watershed Restoration Strategic Plan.
- g. **Restoration that alters environments should give highest priority to project results that use natural processes.** All potential restoration projects evaluated will use natural processes. This will be the approach to erosion control on the Calaveras River. The project staff understands that to develop and implement appropriate restoration and rehabilitation for river systems, it is necessary to understand the dynamic nature of the Calaveras River. An approach incorporating qualitative geomorphic principles with biological aspects related to riparian vegetation, fisheries, and aquatic biota will be used to evaluate alternatives for future bank restoration design and construction projects.
- h. **Progress of restoration must be effectively monitored, using explicit objectives and benchmarks, in order to evaluate ongoing restoration and stewardship efforts.** A

comprehensive project plan will be developed which will include explicit objectives and benchmarks. The SEWD and Calaveras County will monitor water quality at their water treatment plants to determine the effectiveness of the project. Pre- and post-project water quality data will be gathered and reviewed. In general, the first milestone of the eight projects will be the completion of a watershed management plan. The second milestone will be to establish monitoring plans and analyze existing data to determine water quality impact. The evaluation of mining ditch water to determine its potential use as supply water to the CCWD, thereby expanding the existing water supply and alleviating water demand on the Calaveras River, will be the third milestone. A fourth milestone will be to evaluate watershed computer models for use on the Calaveras River. The fifth milestone will be the education outreach programs.

- i. **Restoration plans and/or projects must not sacrifice one ecosystem for another.** The proposed project will not sacrifice one ecosystem for another. To insure that all ecosystems will be protected, the following approach will be used:
- Goal setting: This project will address issues as to what constitutes success; how to set goals, define performance measures, and develop a structured decision process which considers all ecosystems.
 - Compliance: This project will meet water quality and biological criteria, and other measures of compliance to protect all ecosystems.
 - Planning: A degree of restoration, protection, and/or preservation will be defined for each ecosystem. The project will utilize predeveloped controls and measurements.
 - Information gathering: This project will utilize field monitoring design, optimization, and quality considerations, special studies, and data measurement and processing for each ecosystem.
 - Technical studies: This project will utilize model/analyses selection, Best Management Plans, watershed and receiving water modeling, mixing zone analysis, and alternative analyses.
 - Economics: This project will utilize funding mechanisms (i.e. value of resources, operation and maintenance, cost allocation, and utilities) for the long term protection of each ecosystem.
 - Public outreach: This project will include an identification of stakeholders, definition of role, and extent of their participation to assure that protection of all ecosystems are represented.
 - Monitoring: This project will utilize ambient monitoring, compliance monitoring, and environmental indicators to assure protection of each ecosystem.
- j. **Restoration must be accomplished consistent with existing applicable environmental laws.** The proposed watershed management plan will comply with California Environmental Quality Act, and all necessary local, state, and federal laws and regulations. The program consultant has committed to assigning their senior regulator specialist to the project.

PRINCIPLES OF WATERSHED COMMUNITY INVOLVEMENT

- a. **Watershed strategic, annual and project planning must be open, public and involve communities in the watershed.** All meetings of the Calaveras River Committee will be open and public. The Calaveras River Committee will hold meetings in several communities throughout the watershed in order to ensure that the process is inclusive.
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A public notification will be issued, a fact sheet will be prepared, and a public meeting will be held prior to implementation of the project to inform the public about the project and receive community input. The community will be informed about the current threat to drinking water and the proposed solutions to mitigate those threats. The proposed project would include working with the Calaveras County Health Department to inform the public on potential septic tank health effects.

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- e. **Watershed groups/JPAs administering restoration projects must deposit restoration funds in institutions that actively invest in local communities and economic revitalization within the Council's jurisdiction.** The project will be administered by San Joaquin County, with funds managed by the County Auditor's Office.
- f. **Watershed groups must adopt restoration strategies, and plans of action, that enhance and create local job and contracting opportunities.** The proposed Calaveras River watershed management plan will identify restoration projects that will result in contracts that provide significant opportunity for local firms and suppliers.
- g. **Watershed policy, restoration and stewardship plans and projects must be consistent with principles and standards established by this act.** As described in the above responses, the project is consistent with principles listed in this Request For Proposal.

ATTACHMENT B FIGURES

Figure 1. Calaveras River Watershed and Location Map

Figure 2. Calaveras River Hydrologic System

Figure 3. Potential Point Sources of Contaminants in the Calaveras River Watershed

Figure 4. Potential Nonpoint Sources of Contaminants in the Calaveras River Watershed

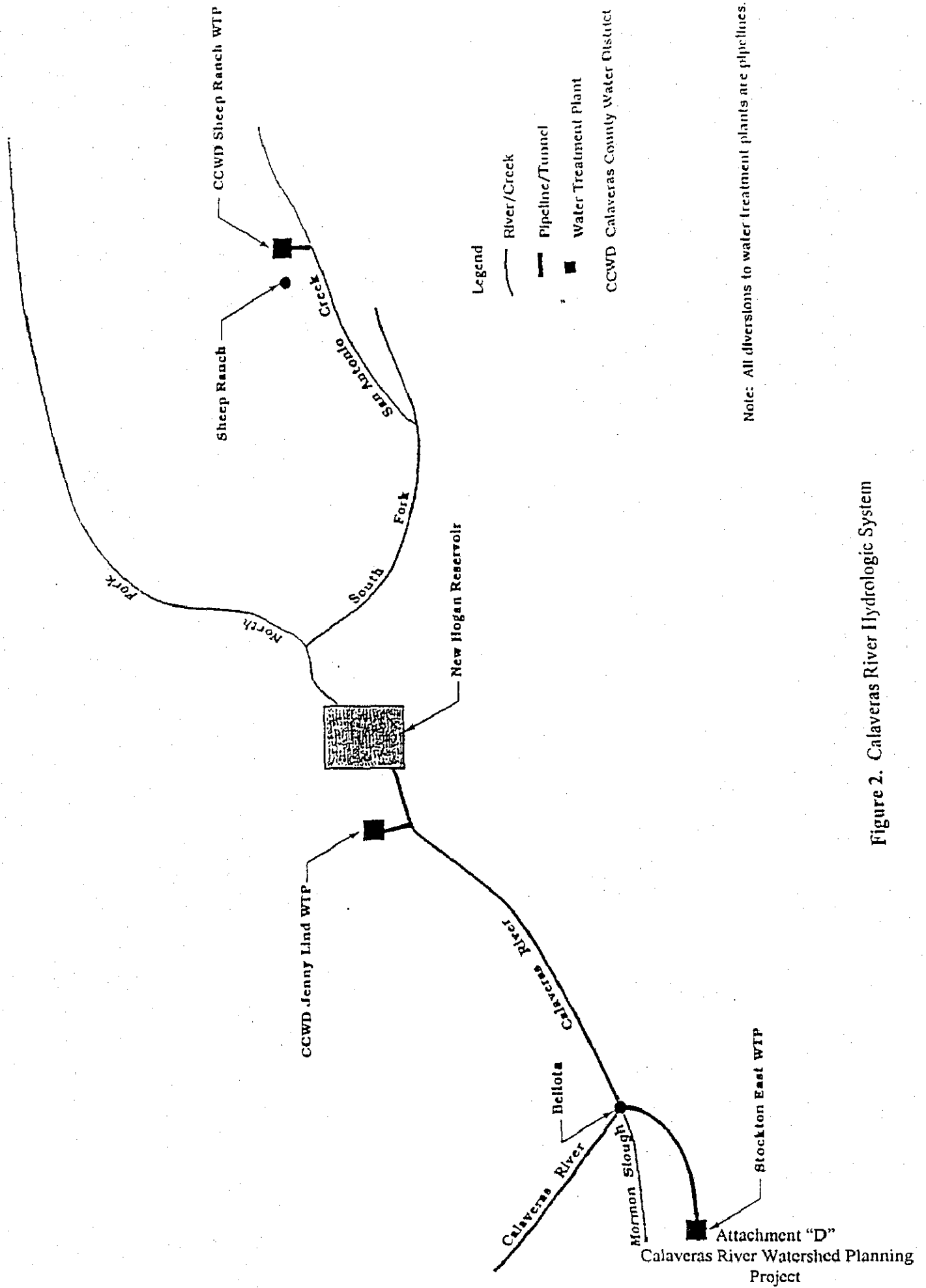


Figure 2. Calaveras River Hydrologic System

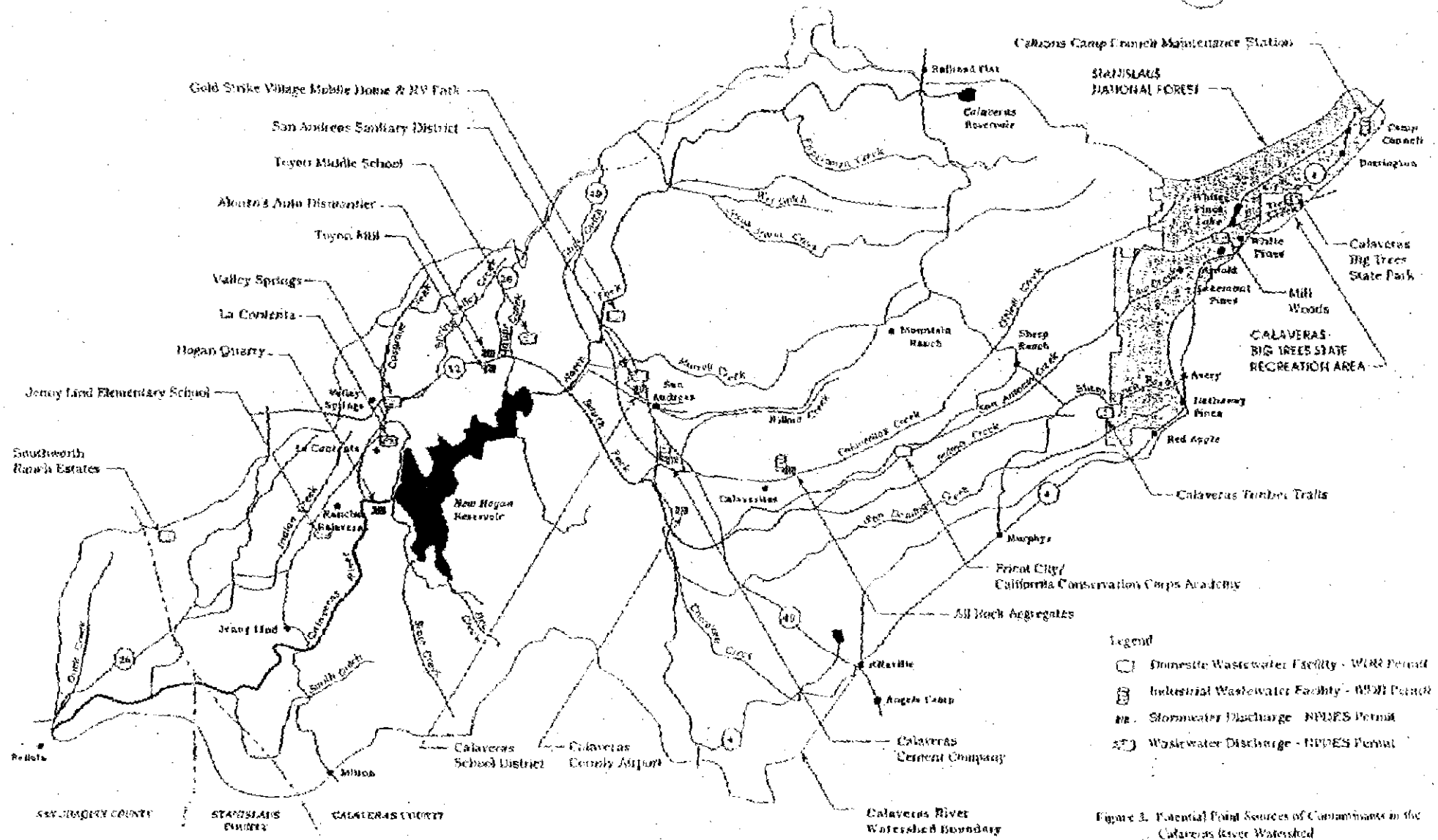


Figure 1. Potential Point Sources of Contaminants in the Calaveras River Watershed

Attachment "D"
Calaveras River Watershed Planning Project

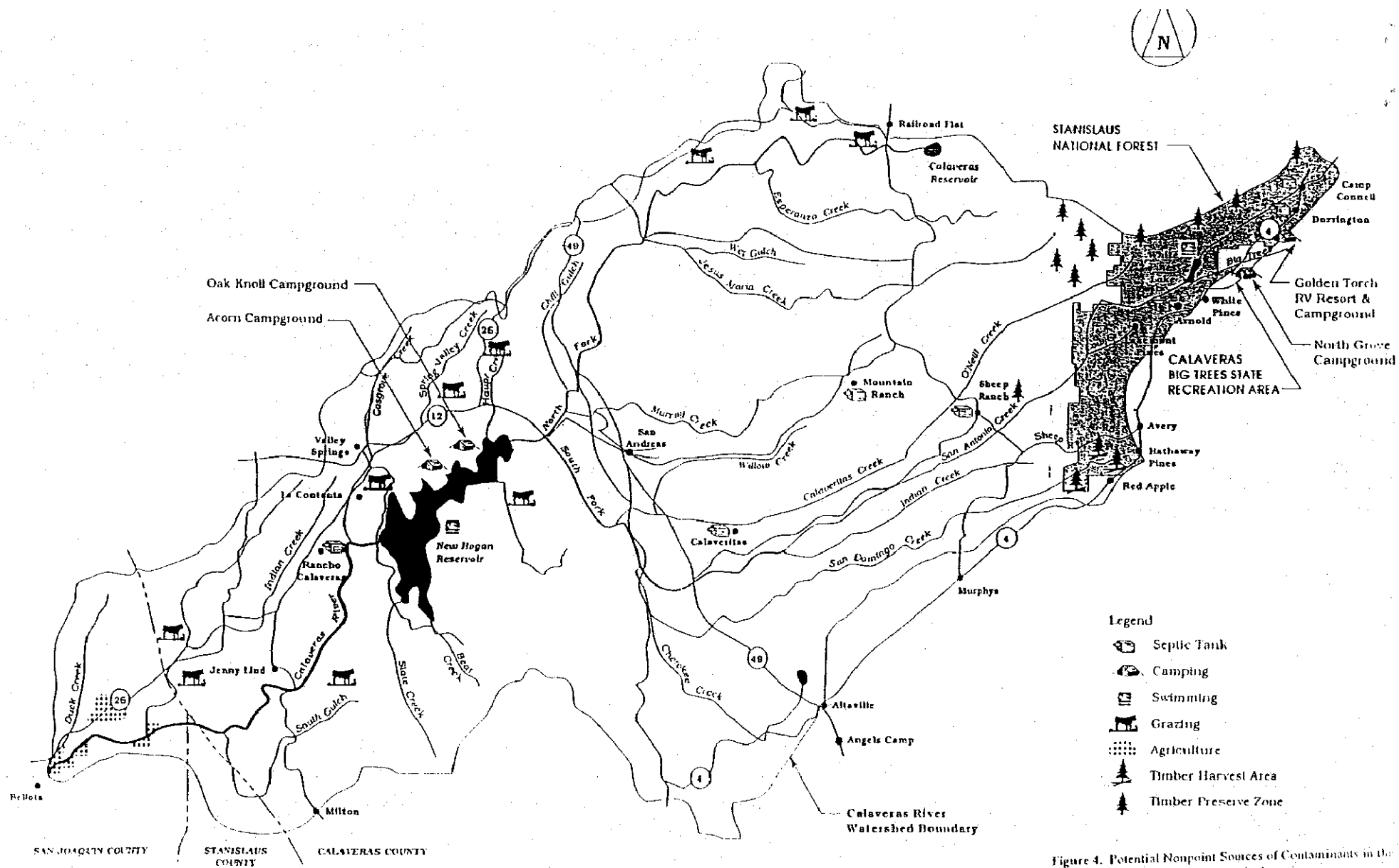


Figure 4. Potential Nonpoint Sources of Contaminants in the Calaveras River Watershed
Attachment "D"
Calaveras River Watershed Planning Project



SAN JOAQUIN COUNTY

FLOOD CONTROL & WATER CONSERVATION DISTRICT

P. O. BOX 1810

1810 EAST HAZELTON AVENUE
STOCKTON, CALIFORNIA 95201
TELEPHONE (209) 468-3000
FAX NO. (209) 468-2999

HENRY M. HIRATA
DIRECTOR OF PUBLIC WORKS
FLOOD CONTROL ENGINEER

Attachment A

August 14, 1998

Ms. Jean Ladyman
Division of Water Quality
State Water Resources Control Board
901 "P" Street
Sacramento, California 95814

SUBJECT: GRANT APPLICATIONS FOR PROPOSITION 204
DELTA TRIBUTARY WATERSHED PROGRAM FUNDS

Dear Ms. Ladyman:

On January 6, 1998, the Board of Supervisors adopted the enclosed Resolution (R-98-15) "Authorizing the filing of grant applications with the State Water Resources Control Board for Proposition 204 Delta Tributary Watershed Program Funds" for programs proposed by the City of Stockton and the Stockton East Water District. Both applications were filed.

Please find enclosed a refiling of the San Joaquin County project application for the Stockton East Water District project. The project is titled "Watershed Planning - Calaveras River Watershed, Calaveras River, East San Joaquin County/West Calaveras County, California." The project is the same project as previously authorized for filing by the San Joaquin County Board of Supervisors. This project will be jointly managed by the Stockton East Water District and the Calaveras County Water District. Also, see enclosed letters of support from the Calaveras County Administrative Officer, the California Department of Forest and Fire Protection, and the United States Forest Service.

Should you have any questions regarding the Stockton East Water District's project, please contact Edward M. Steffani at (209) 948-0333. The project will be beneficial for Delta water quality and will assist in dealing with local responsibility for water quality in streams which provide public water supply and discharge to the Delta.

Sincerely,

Henry M. Hirata

HENRY M. HIRATA
Director of Public Works

HMH:JWP:to
WK1PROP204.JL

Enclosures

c: San Joaquin County Board of Supervisors
Simon Granville, Calaveras County Water District
Brent Harrington, Calaveras County Administrator
Edward M. Steffani, Stockton East Water District
John W. Pulver, Water Resources Coordinator

Attachment "D"
Calaveras River Watershed Planning
Project

BEFORE THE BOARD OF SUPERVISORS OF THE COUNTY OF SAN JOAQUIN
FLOOD CONTROL AND WATER CONSERVATION DISTRICT
STATE OF CALIFORNIA

R E S O L U T I O N

R-98- 15

RESOLUTION AUTHORIZING THE FILING OF GRANT APPLICATIONS
WITH THE STATE WATER RESOURCES CONTROL BOARD FOR
PROPOSITION 204 DELTA TRIBUTARY WATERSHED PROGRAM FUNDS

WHEREAS, California voters approved Proposition 204, the "Safe, Clean, Reliable Water Supply Act," including provisions, under Article 5, Delta Tributary Watershed Program (Delta Program), to implement and fund rehabilitation activities in watersheds draining to the Sacramento-San Joaquin Rivers Delta or the Trinity River; and,

WHEREAS, the State Water Resources Control Board requires that project applications for Delta Program Grant Funds be submitted by January 9, 1998; and,

WHEREAS, the County may submit applications to the State Water Resources Control Board for eligible projects, requesting financial and technical assistance for the purpose of developing voluntary, incentive-based watershed rehabilitation projects that are all, or in part, within the boundaries of the San Joaquin County;

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors adopt this Resolution authorizing the filing of grant applications with the State Water Resources Control Board for Proposition 204 Delta Tributary Watershed Program Funds for programs proposed by the City of Stockton and the Stockton East Water District.

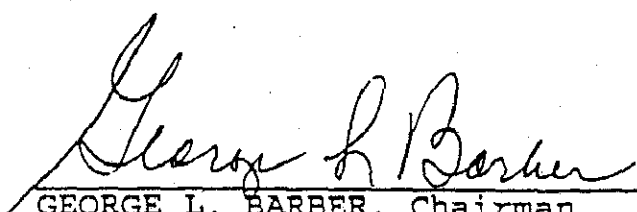
PASSED AND ADOPTED this JAN 06 1998 by the following vote of the Board of Supervisors, to wit:

AYES: LIMAS, CABRAL, GUTIERREZ, BARBER

NOES: NONE

ABSENT: MARENCO

ATTEST: LOIS M. SAHYOUN
Clerk of the Board of Super-
visors of the County of San
Joaquin, State of California


GEORGE L. BARBER, Chairman
of the Board of Supervisors
County of San Joaquin
State of California

By 
Deputy Clerk



Attachment "D"
Calaveras River Watershed Planning
Project

CALAVERAS COUNTY**BRENT HARRINGTON**

County Administrative Officer

**ADMINISTRATIVE OFFICE**

July 30, 1998

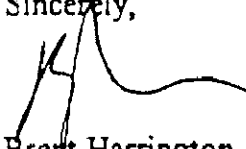
Mr. Simon Granville
General Manager
Calaveras County Water District
P.O. Box 846
San Andreas, CA 95249

RE: Filing of Grant Applications with the State Water Resources Control Board for
Proposition 204, Delta Tributary Watershed Program Funds

Simon:

It is my understanding that the State Water Resources Control Board (SWRCB) grant program under Proposition 204 requires County authorization for the filing of grant applications, and that it is Calaveras County Water District's intention to apply for these funds for planning projects that will benefit County residents. You have the County of Calaveras' support to request technical and financial assistance from the SWRCB for the purpose of developing watershed assessment projects and drinking water source surveys that are within Calaveras County boundaries and that may affect the immediate downstream watershed boundaries from headwaters located within the County.

Sincerely,



Brent Harrington
County Administrative Officer

cc: Board of Supervisors

RECEIVED

AUG 06 1998

CALAVERAS CO. WATER DIST.

Attachment "D"
Calaveras River Watershed Planning

STATE OF CALIFORNIA-THE RESOURCES AGENCY

PETE WILSON, Governor

DEPARTMENT OF FORESTRY AND FIRE PROTECTION

Tuolumne/Calaveras Ranger Unit
Star Route #1, 785 Mountain Ranch Road
San Andreas, CA 95249
Telephone: (209) 754-3831
FAX: (209) 754-1959
Ref: 5600



August 12, 1998

Mr. Simon Granville
General Manager
Calaveras County Water District
P.O. Box 846
San Andreas, CA 95249

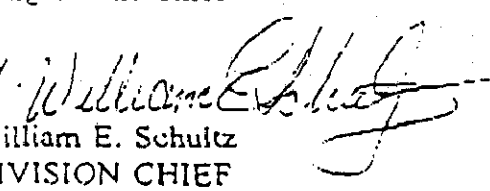
Dear Mr. Granville:

RE: Grant Application for Proposition 204 Program Funds

The California Department of Forestry and Fire Protection, Tuolumne-Calaveras Ranger Unit is supportive of the District's application for funding under the Delta Tributary Watershed Program for the purpose of developing watershed assessment projects that will benefit residents of the area and improve downstream and watershed resource values.

Sincerely,

Delmer L. Albright
Ranger Unit Chief

By 
William E. Schultz
DIVISION CHIEF
Pre-Fire Management

wcs

Attachment "D"
Calaveras River Watershed Planning
Project



United States
Department of
Agriculture

Forest
Service

Stanislaus National Forest
19777 Greenley Road
Sonora, CA 95370-5909
(209) 532-3671
FAX: (209) 533-1290
TTY/TDD: (209) 533-0765
<http://www.fs.fswfs.gov/stanislaus>

File Code: 2700

Date: August 11, 1998

Mr. Simon Granville
General Manager
Calaveras County Water District
P. O. Box 846
San Andreas, CA 95249

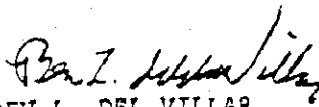
Dear Mr. Granville:

It is my understanding that the State Department of Water Resources grant program under Proposition 204 requires that the US Forest Service concur with your request to file a grant application for the use of these funds to finance planning projects which will benefit the citizens of Calaveras County, if those projects may affect lands or interests in lands under the jurisdiction of the Forest Service.

The Forest Service supports your request for funds to conduct studies which will lead to development of projects beneficial to the restoration and protection of lands and waters necessary for the beneficial use of its citizens.

We look forward to working with you in conducting these studies if funds are provided to you for these purposes.

Sincerely,


BEN L. DEL VILLAR
Forest Supervisor

cc: Calaveras RD

OPTIONAL FORM NO. 10 (7-90)

FAX TRANSMITTAL

of Pages 1

To: <u>THOMAS HEREDIA</u>		From: <u>BIL FERRELL</u>
Dist./Agency: <u>CCWRD</u>	Phone: <u>532-3671</u>	
Fax: <u>754-1069</u>	FAX: <u>533-1290</u>	
NFS/FS-600-37-1-283 5009-101 GENERAL SERVICES ADMINISTRATION		



Caring for the Land and Serving People

Attachment "D"
Calaveras River Watershed Planning
Project

Printed on Recycled Paper
FS-6200-286 (12/93)



**PRINCIPLES FOR WATERSHED RESTORATION
AND
PRINCIPLES OF WATERSHED COMMUNITY INVOLVEMENT**

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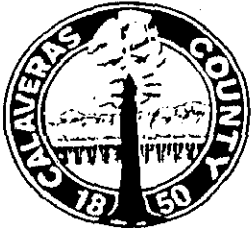
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CALAVERAS COUNTY

BOARD OF SUPERVISORS

891 Mountain Ranch Road

San Andreas, California 95249

(209) 754-6370

FAX (209) 754-6733

March 29, 1999

CALFED

Bay-Delta Program Office
1416 Ninth St., Suite 1155
Sacramento, CA 95814

RE: Calaveras River Salmon Rehab Project
Funding Request - New Hogan Lake Conservancy

The Calaveras County Board of Supervisors have reviewed the proposal by the New Hogan Lake Conservancy and we support their request for funding.

What they are proposing to do, place 2,000 cubic yards of spawning gravel to replace spawning sites, and construct a temporary fish exclusion weir in the Old Calaveras River, supports the Calaveras River Salmon Rehab Project. This will allow incremental work to be done while the Department of Fish and Game conducts a three year study to determine the overall needs for the Calaveras River Salmon, (SURFACE WATER RESOURCES INC.)

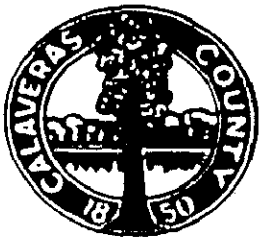
We urge your support of this worthwhile endeavor.

Sincerely,

PAUL STEIN
Chair

cc: New Hogan Lake Conservancy
Fish & Game Commission

Attachment "F-1"
Letters of Support for Anadromous
Fisheries Restoration



CALAVERAS COUNTY
FISH and GAME COMMISSION

Government Center
SAN ANDREAS, CA 95249

March 25, 1999

CALFED Bay-Delta Program Office
1416 Ninth Street, Suite 1155
Sacramento, Ca. 95814

Re: Calaveras River Salmon Rehab Project Funding Request.

Dear CALFED

The Calaveras County Fish and Game Commission has reviewed the proposal by the New Hogan Lake Conservancy to request funding for the following:

1. Place 2,000 cubic yards of spawning gravel below New Hogan Dam to replace spawning sites.
2. Construct a temporary fish exclusion weir, October through December, to prevent stranding spawners in the Old Calaveras River.

We support this Calaveras River Salmon Rehab activity project. It will allow incremental work to be done, while the Department of Fish and Game oversees a 3 year comprehensive study to determine the overall needs for the Calaveras River Salmon and water use.

The Department of Fish and Game is assisting this project by building a new custom fit and proper sized Denil Ladder for the Bellota Weir.

Sincerely,

Nandy Metzger, Chairman

by

Alice Raine
Alice Raine, Secretary

March 8, 1999

Mr. Raine
Project Manager
New Hogan Lake Conservancy
7311 Stabullius Road
Valley Springs, CA 95252

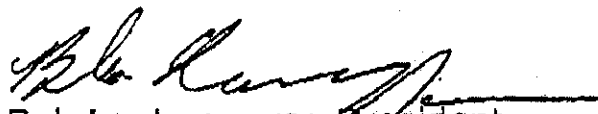
Dear Mr. Raine,

We the Delta Fly Fishers of Stockton California are in support of your project to restore the instream habitat of the Calaveras River at the Bellota Weir and Silver Rapids Road locations.

After review of your objectives, we find providing passage beyond the Bellota Weir and restoring the spawning gravel beds a worthwhile project and offer our assistance. We as a club that promotes conservation would like to also state that our support for the steelhead fishery is also of concern here and we expect this project to address the plight of this fishery too!

It's ironic to be able to restore the salmon fishery in the Calaveras for the Calaveras Salmon was part of the clubs logo early on until the fishery itself dwindled to extinction.

Best Regards,


Bob Laubengayer, President

Attachment "F-1"
Letters of Support for Anadromous
Fisheries Restoration


Larry Dextraze, Conservation Chairman



P.O. Box 1255 Pine Grove, California 95665
209.296.5600 / www.outdoingit.com/fhc

CalFed

1416 9th Street
Sacramento, CA 95814

April 12, 1999

re: New Hogan Lake Conservancy grant application

The Foothill Conservancy is a 200-member nonprofit organization that works on environmental and community issues in Amador and Calaveras counties. We strongly support the New Hogan Lake Conservancy's Calaveras River Salmon Rehabilitation Project grant proposal. The fishery restoration needs of the Calaveras River are very similar to those of the lower Mokelumne River and equally deserving of attention and funds.

We support the staged approach proposed by the NHLC. Interim steps developed by that organization in cooperation with the California Department of Fish and Game will be followed by a comprehensive fluvial morphology study to develop longer-term approaches to restoration of Calaveras River fisheries.

We intend to be involved with the NHLC as it moves forward with this project and will continue to support ongoing efforts to restore and enhance the Calaveras River salmon and steelhead fishery. We hope that you will fund the interim steps necessary to put the Calaveras River on the road to restoration.

Very Truly Yours,

Katherine K. Evatt
President



CI947957
1995

NEW HOGAN LAKE CONSERVANCY

February 19, 1999

Cal-Fed Funding Request
Fish Ladder/Habitat Restoration
Calaveras River

Dear S.E.W.D. Board;

My Non-Profit corporation is requesting Cal-Fed funds to provide a custom fit fish ladder to allow salmon a passage over the Bellota Weir and to improve and increase the area of spawning gravels available to salmon.

A discription of the project and a cost estimate is enclosed for your review.

Cal-Fed. requires that the lead agency, NHLC, notify local agencies and conservation groups about the project. In addition, the lead agency shall request a show of support and ask those groups to consider voluntary pledges of financial or materials donations. Cost share and matching funds assistance are volutary and can only be accepted after a final contract is signed between Cal-Fed and the NHLC.

Letters of support and offers of assistance should be mailed to the conservancy, to be included in the proposal. The deadline for submitting all items is April 10, 1999.

Your review of this project is appreciated and a letter of support can decide if this proposal receives funding.

Respectfully;

John C. Raine
John C. Raine

PS

Surface Water Resources
Inc., will do the work.

Notified Agencies

DFG Region II	Ca. Striped
FWS Stockton	Bass Assn.
COE Valley Springs	
Delta Prot. Comm.	Woodbridge
Calaveras Co.	River Group
San Joaquin Co.	
CC Water Dist.	DELTA FLY FISHERMEN
S.E. Water Dist.	
Cala. Co. F&G Comm.	
Foothill Conservancy	
STATE BUREAU RECLAMATION	

John C. Raine, Project Manager

7311 Stabulis Road, Valley Springs, CA 95252 (209) 786-2470
Non Profit

Attachment "F-1"
Letters of Support for Anadromous
Fisheries Restoration

SUBCONTRACTORS



CI947957
1995

NEW HOGAN LAKE CONSERVANCY

Instream Habitat Restoration Project

CALAVERAS RIVER

Purpose: To restore salmon spawning gravels and improve upstream migration passage over Belotta Weir. Replace gravels and fines below the weir.

Goals: To increase number of spawning salmon into the upper reach of the river below New Hogan Dam, increase available redd space with new gravels.

History: Since 1945, the Corps of Engineers has operated a flood control/irrigation project. Salmon have used the river to spawn in during high water and irrigation overflows that reach the mouth of the San Joaquin River, west of I-5 and Brookside road.

Funding: Monies are to come from available Prop. 70, Salmon (CVPIA) Steelhead or Prop. 204 revenues per dept. regs, (CAL, FED.)

Landuse: The upper six miles of the river from the dam to the Jenny Lind Bridge at Milton Rd. is steep brush covered hillsides, privately owned. The seven miles below the bridge are lowland farm and cattle property with good stands of riparian habitat along the banks to Linden, Ca. The last Thirteen miles is the Corps of Engineers flood control channel around Stockton, Ca. that is channeled deeply enough to allow salmon to go upstream quickly to the holes just below Belotta Weir.

Project Activity: A denille ladder will be placed on the weir, cobble rock will be placed down stream to assist spawners over the weir footing and gravels will be used for gravel recruitment lost behind the dam.

Project

Benefits: Increasing access to more spawners and increasing spawn success will stabilize and encourage more frequent salmon returns to the river. The last D.F.G. estimate was a stable 2,000 fish population based on available spawning gravel in 1989.

John C. Raine, Project Manager
7311 Stabulis Road, Valley Springs, CA 95252 (209) 786-2470 Attachment "F-1"
Non Profit Letters of Support for Anadromous
Fisheries Restoration

SUBCONTRACTORS

Dept. of Fish and Game, Calaveras Boy Scouts, California Conservation Corps.

LARRY DIAMOND

C → J.C.



CI947957
1995

NEW HOGAN LAKE CONSERVANCY

April 15, 1999

Ed Staffanni
Gen. Manager
S.E.W.D.

RECEIVED

APR 15 1999

C.C.W.D.

Dear Ed:

At the request of Nick Villa, DFG Region II, a steering committee is being formed to discuss, plan and resolve issues of water use and fishery enhancement for the Calaveras.

1. Public Access to river frontage.
2. Salmon/Steelhead migration flows.
3. Comprehensive Fluvial Morphology flow, gravel studies.
4. 20,000 a.f. transfer of Melones (enviornmental water).
5. Properly timed and regulated flood control releases to prevent stranding trout and salmon juveniles.

Present committee members are as follows:

Nick Villa	DFG
Erwin Van Nuenhyse	FWS
John Raine	N.H.L.C.
George Checcetti	Woodbridge Rivers Co.
Terry Natt	Foothill Conservancy
Lary Dextraze	Delta FlyFishermen

We need a member from SEWD and CCWD to for completion.

I have contacted Kelly - the Bureau of Reclamation in Sacramento, who handles water appropriation for fisheries. Her number is 1-916-978-5290.

The Calaveras County Supervisors and Fish & Game Commission are supportive and we want SEWD to join the effort.

Respectfully,

John C. Raine
John C. Raine

John C. Raine, Project Manager
7311 Stabulis Road, Valley Springs, CA 95252 (209) 786-2470
Non Profit I.D. # 557524819

SUBCONTRACTORS

Dept. of Fish and Game, Calaveras Boy Scouts, California Conservancy Corps.

Attachment "F-1"
Letters of Support for Anadromous
Fisheries Restoration



CI947957
1995

NEW HOGAN LAKE CONSERVANCY

April 13, 1999

Banky Curtis
Region II DFG
Rancho Cordova, Ca

RECEIVED

APR 09 1999

C.C.W.D.

Re: Calaveras River Salmon Rehab Project

Dear Banky;

As you may be aware, I have a (3) step Cal-Fed proposal for restoring and enhancing the salmon/steelhead fishery on the Calaveras River. Depending on funding, either Tetra Tech Inc. or Surface Water Resources Inc., will be doing the fluvial morphology study on flows, gravel etc. beginning in 1999.

Step 1. DFG is building the denil ladder for Bellota Weir in August. USFWS (Erwin) has written a contract to purchase 2,000 yds. of gravels and have a study done on the upper 2 miles of river for proper gravel placement this fall.

Step 2. A complete study of the river from Bellota Weir to the base of New Hogan Dam will be done by October 2000., and an additional 1,000 yds of gravel will be purchased.

Step 3. Fishery flow water of about 15,000 acre feet will need to be acquired from New Melones flood control release waters, Oct-Nov., will be transferred through the conveyance canal, through Farnington Reservoir, through the Stockton East canal/pipeline to S.E.W.D. This step will allow the New Hogan Corps to set aside an equal amount of Hogan water for spawn/fry hatch flows that may be needed every third year on average.

I am requesting that you have the proper persons in the region office contact me so we can begin the dialogue with Bureau of Reclamation and water district persons we need to work with.

Respectfully;

John C. Raine
John Raine

cc, Woodbridge Rivers Group	Bureau Rec.	S.E.W.D.
Foothill Conservancy	DFG Fishery Dir,	Corps. Engin.
Delta Fly Fishers	USFWS-Erwin	C.C.W.D.

John C. Raine, Project Manager
7311 Stabulis Road, Valley Springs, CA 95252 (209) 786-2470
Non Profit I.D. # 557524819

SUBCONTRACTORS

Dept. of Fish and Game, Calaveras Boy Scouts, California Conservation Corps. Attachment "F-1"
Letters of Support for Anadromous
Fisheries Restoration

DEPARTMENT OF FISH AND GAME

SACRAMENTO VALLEY and CENTRAL SIERRA REGION

31 NIMBUS ROAD, SUITE A

MILPITAS, CALIFORNIA 95035

TEL (415) 339-2900



March 29, 1999

Mr. Ed Steffani, General Manager
Stockton East Water District
6767 E. Main Street
Stockton, California 95205-0157

Dear Mr. Steffani:

You recently had a discussion with Mr. Nick Villa of my staff to identify actions and funds to resolve some critical fisheries issues. We believe the result of your discussion and commitments will serve to achieve many common short-term goals of our agencies and to begin seeking long-term resolution to more complex issues. In summary:

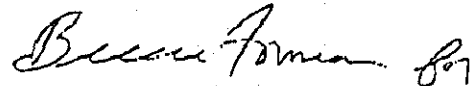
1. The Department of Fish and Game (DFG) will build and install a temporary fish ladder (\$10,000) at Bellota Weir prior to fall 1999. Stockton East Water District (District) will assist the DFG in placement, removal, monitoring and storage of the ladder each season that the fish ladder is deployed.
2. The District will consider any flow recommendation and dam configuration to facilitate adequate fish passage at Bellota Weir during the salmon and steelhead migration season.
3. The District will assist the DFG in forming a steering committee consisting of local and governmental interests to provide a forum for discussion of issues and possible advisory to the DFG and the District. The composition of members and meeting frequency will be mutually agreed upon.

Mr. Ed Steffani
March 29, 1999
Page Two

- * 4. The District and the DFG will support, in concept, a proposal to CalFed to identify the issues and baseline condition for possible anadromous fish restoration in the Calaveras River basin. The proposal shall consider conjunctive water use studies conducted by the District as well as activities identified in the DFG's report entitled "*Central Valley Anadromous Fish Restoration: A Plan For Action*".

We appreciate your concern and involvement relative to the need to restore anadromous fishery resources in the Calaveras River. We believe your cooperation will be instrumental in achieving our common goals and to assure long-term protection of our natural resources. If you need more information, please contact Dr. Larry Eng, Environmental Program Manager or Mr. Nick Villa, Senior Biologist at (916) 358-2939.

Sincerely,



Banky L. Curtis
Regional Manager

cc: Dr. Larry Eng
Mr. Nick Villa
Department of Fish and Game
Rancho Cordova, California

Mr. John Raine, Manager
New Hogan Lake Conservancy
7311 Stabulis Road
Valley Springs, California 95252

Tetra Tech Overview

Anchorage, AK
Juneau, AK
Phoenix, AZ
Tempe, AZ
Tucson, AZ
Costa Mesa, CA
Lafayette, CA
Pasadena, CA
Sacramento, CA
San Bernardino, CA
San Diego, CA
San Francisco, CA
Santa Barbara, CA
Boulder, CO
Denver, CO
Grand Junction, CO
Christiana, DE
Orlando, FL
Atlanta, GA
Hilo, HI
Honolulu, HI
Chicago, IL
Fairview Heights, IL
Liste, IL
Rolling Meadows, IL
Kansas City, KS
Lexington, KY
Louisville, KY
Baton Rouge, LA
Aberdeen, MD
Baltimore, MD
Boston, MA
Harvard, MA
St. Paul, MN
Kansas City, MO
Helena, MT
Las Vegas, NV
Reno, NV
Freehold, NJ
Mount Arlington, NJ
Albuquerque, NM
Los Alamos, NM
Cincinnati, OH
Oklahoma City, OK
Portland, OR
Lancaster, PA
Philadelphia, PA
Pittsburgh, PA
Aiken, SC
Charleston, SC
Nashville, TN
Amarillo, TX
Dallas, TX
Houston, TX
San Antonio, TX
Fairfax, VA
Falls Church, VA
Vienna, VA
Sterling, VA
Kennewick, WA
Kingston, WA
Redmond, WA
Seattle, WA
Milwaukee, WI

International

Santiago, Chile
Schriesheim, Germany
Cebu, Philippines
Manila, Philippines
Taipei, Taiwan
Bangkok, Thailand

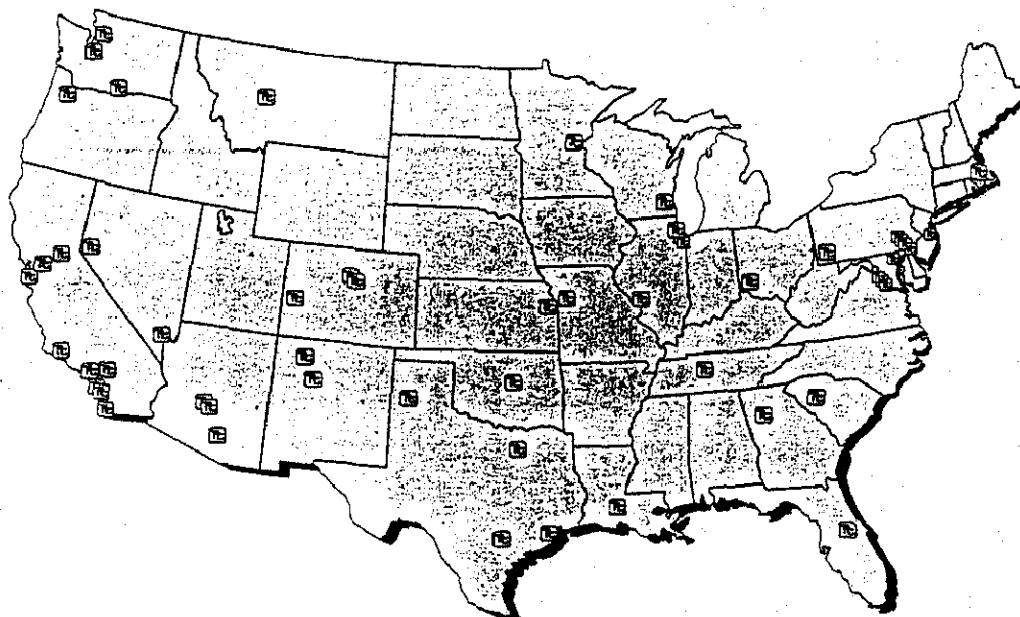
Tetra Tech, established in 1966, offers full-service environmental and water resources engineering services. The firm has successfully managed and performed many prime contracts for private industry and state and federal agencies.

Tetra Tech is headquartered in Pasadena, California, and has a staff of approximately 2,000 people located in over 70 offices worldwide. With 16 offices and approximately 50 percent of Tetra Tech's staff located in Nevada and California, Tetra Tech can mobilize personnel quickly and cost-effectively.



Our professionals represent over 45 scientific and engineering disciplines and are registered to practice in 37 states. An experienced program manager, Tetra Tech has managed environmental projects at more than 1,000 sites in the western United States. Our projects have included hydrology and hydraulics engineering, surface and ground water modeling, water resources management, environmental impact statements, wastewater engineering, socioeconomic studies, biology resource surveys, engineering and Title II services, and hazardous waste management.

Over 70 Offices Worldwide



Attachment "G"
National Water Resources/Program
Management Consultant Overview

A full range of environmental services



Environmental Impact Analysis

- Environmental Impact Statements
- Alternatives Screening and Evaluation
- Cultural and Natural Resources Surveys
- Socioeconomic Analysis
- Public Involvement Programs
- Mitigation Plans and Monitoring Programs
- Water Resources Evaluations
- Wastewater and Water Projects



Hazardous Waste Management

- Remedial Investigations and Design
- Feasibility Studies
- Design Engineering
- Ecological/Health Risk Assessment
- Site Closure/Remediation
- Construction Management
- Storage Tank Investigation and Removal
- Expert Testimony and Litigation Support



Regulatory Compliance and Permitting

- Environmental Audits
- Asbestos and Lead Surveys and Abatement
- Pollution and Spill Prevention Plans
- Compliance Evaluations
- Health and Safety Plans and Industrial Hygiene
- Clean Air Act Compliance
- Regulatory Agency Negotiation

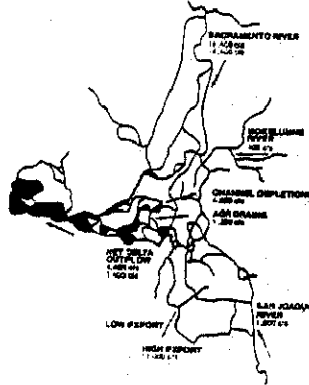


Water Resources Management

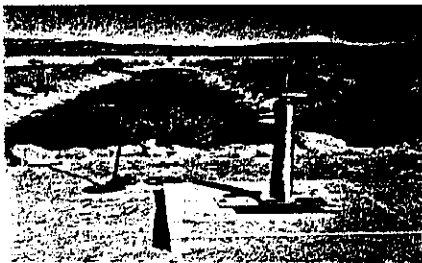
- Water Quality Management
- Water Monitoring and Sampling
- Wetlands Management
- Surface and Ground Water Modeling
- Stormwater Planning and NPDES Permitting
- Fisheries Impact Evaluation
- Hydrographic Surveys
- Flood Control Planning

Attachment "G"
National Water Resources/Program
Management Consultant Overview

Water Resources Management



Water system modeling. Tetra Tech uses sophisticated models, such as HEC and QUAL-2E, to evaluate river and delta ecosystems. Tetra Tech developed the Corps of Engineers Bay-Delta Model—the most sophisticated working model of the estuary available.



Irrigation canal design. In an effort to optimize water consumption on farmlands, Tetra Tech designs and oversees construction of irrigation canals.

Flood control. Tetra Tech provides a broad range of flood control services, including the evaluation of river sediment transport dynamics, levee and embankment design, flood routing studies, and related permitting.



Water Resources Services

- ◆ Comprehensive water quality studies
- ◆ Flood control planning and hydraulic studies
- ◆ Canal design and construction
- ◆ Hydrographic surveys
- ◆ Advanced water system modeling
- ◆ Water and sediment sampling and analysis
- ◆ Fisheries impact evaluations
- ◆ Stormwater planning and permitting
- ◆ NEPA/CEQA documentation

Attachment "G"
National Water Resources/Program
Management Consultant Overview

Stormwater Management Services

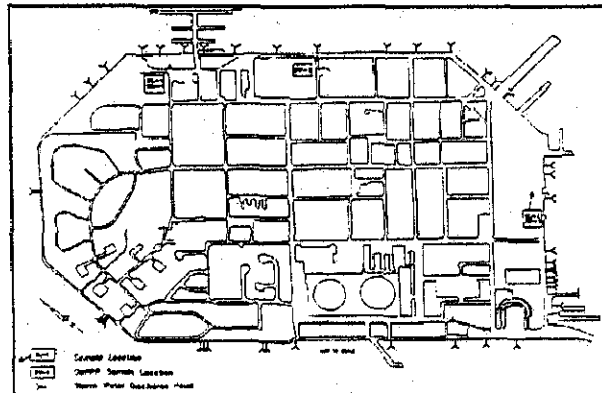


Highway construction support. Tetra Tech provides planning support to highway agencies in connection with new road construction and NPDES compliance programs.



Drainage system evaluation. Tetra Tech is experienced at analyzing stormwater runoff patterns as part of designing effective erosion and pollution control plans.

Stormwater Planning Services. Tetra Tech provides comprehensive stormwater planning services, including water quality monitoring and preparation of Stormwater Pollution Prevention Plans (SWPPPs). At Treasure Island, Tetra Tech mapped and monitored the island's 42 stormwater discharge points.



Stormwater Services

- ◆ Stormwater Monitoring
- ◆ Data Analysis
- ◆ Water Quality Modeling
- ◆ Toxicity Analyses
- ◆ Best Management Practices Design
- ◆ Stormwater Planning and Permitting
- ◆ Regulatory Agency Permit Negotiation

Attachment "G"
National Water Resources/Program
Management Consultant Overview

Biological and Wetlands Services



Wetlands management. Tetra Tech provides a range of wetlands management services, including delineations, function and value assessments, and mitigation planning.



Threatened and endangered species assessments. In compliance with the Endangered Species Act, Tetra Tech analyzes the impact of development projects on at-risk plants and animals.



Biological surveys. As part of comprehensive natural resources planning, Tetra Tech scientists identify and evaluate existing plant and wildlife populations.

Biological and Wetland Services

- ◆ Endangered Species Act compliance
- ◆ Habitat quality analysis
- ◆ Habitat conservation plans
- ◆ Biological assessments and surveys
- ◆ Wetlands delineations
- ◆ Wetlands functions and values assessments
- ◆ Mitigation planning and monitoring
- ◆ Natural resources management plans

Attachment "G"
National Water Resources/Program
Management Consultant Overview

Environmental Impact Statements and Reports



Water supply facility evaluation. As part of a planned expansion of a metropolitan water district reservoir, Tetra Tech prepared an environmental impact report evaluating potential impacts of various construction scenarios.



Assessment of water management plans. Tetra Tech evaluated alternative water management plans in Fallon, Nevada, for impacts on water conservation, water quality, regional wetlands, and agriculture.



Natural resources evaluation. As part of the analysis of how development projects will affect the environment, Tetra Tech identifies the full range of physical and human resources likely to be impacted and develops strategies to mitigate adverse effects.

EIS/EIR Services

- ◆ National Environmental Policy Act (NEPA) compliance
- ◆ California Environmental Quality Act (CEQA) compliance
- ◆ Environmental assessments
- ◆ Alternatives screening and evaluation
- ◆ Impacts analysis
- ◆ Public involvement programs
- ◆ Cultural and natural resource surveys
- ◆ Mitigation plans and monitoring programs

Attachment "G"
National Water Resources/Program
Management Consultant Overview

Watershed Management Services

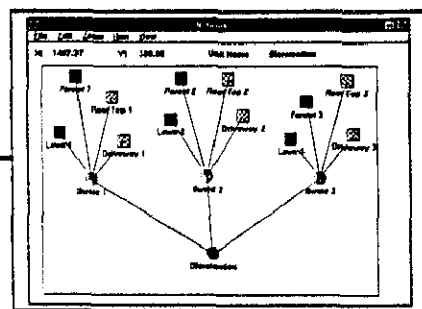
A defining feature of successful watershed programs is the dynamic interaction between technical analyses, governmental policy, programmatic issues, and stakeholder expectations and judgments.

As regulatory requirements become more stringent and local communities enter the implementation phase of management programs, it is clear that a holistic approach to environmental management offers an opportunity to consolidate and facilitate these efforts. This holistic approach can support multiple complex water quality management decisions while cost-effectively employing the limited resources available to municipalities. Many local governments dealing with development and resource protection are faced with new challenges in complying with federal and state regulations, including watershed-based management programs, the stormwater NPDES program, and water quality-based controls. For many jurisdictions, land use practices and urban development, along with associated economic, social, and demographic change, are continuously threatening the integrity of environmental resources. To address these emerging needs, Tetra Tech has developed a watershed management approach and technical toolbox for preparing efficient and practical watershed plans.

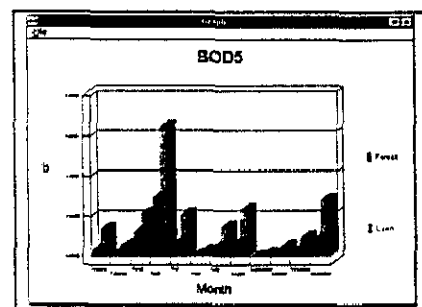
Traditional watershed management efforts employ a linear problem-solving approach that emphasizes project- and site-specific issues where economic and technical feasibility analyses are the driving criteria for decision-making. Traditional approaches can result in imperfect and costly methods of restoring and maintaining ecological health, integrity, and diversity in the watershed or large-scale basin. Successful watershed programs integrate all pollution issues, acknowledge cumulative and indirect impacts, consider system ecology and biological resources, and make appropriate use of quantification procedures and analytical tools. The design of the management approach should account for the changing needs of state or county practitioners, the need for increasingly more detailed assessments of watersheds, the ability of staff members to assess and evaluate new plans, and the use of a phased approach to environmental problem solving, all within the constraints of the allowable time and resources.



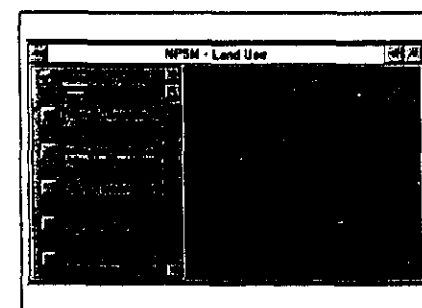
Low-Impact Site Design



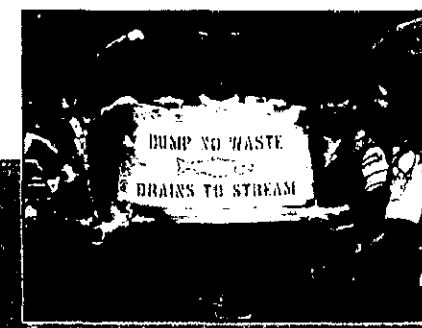
Site Assessment Model (SAM)



SAM Model Output



BASINS NPS Model Watershed View



Public Awareness

Tetra Tech, Inc.



Capabilities

Management planning

Facilitation and goal setting

Characterization

Monitoring

Design

Chemical

Biological

Stream assessment

Analysis and modeling

Hydrology

Hydraulics

Hydrodynamics

Sediment Transport

Water quality

Nonpoint source runoff

BMPs

Mixing zones

Toxics

Total maximum daily loads
(TMDLs)

Waste load allocations
(WLAs)

BMP design

Ecological assessment

Risk-based analysis

Stream restoration

Economic analysis

Stormwater utilities

Public outreach

Training

GIS/database management

Custom software and
system development

The challenge is to find the most effective mix of specialized and generalized

Although watersheds provide a convenient physical defining boundary for focusing efforts, addressing the multiple spatial and temporal scales and various types of stressors and sources within a watershed requires a multi-objective approach. In many cases, the relative priority of numerous objectives, stressor types, management solutions, and interactions between subjective and monitored information is difficult to determine. A defining feature of successful watershed programs is the dynamic interaction between the technical analyses of watershed management and the governmental policy, programmatic issues, and stakeholder expectations and judgments. Successful communication between technical analysts and stakeholders requires clear procedures for sorting, evaluating, and prioritizing problems, based on technical, economic, and social considerations.

Some of the questions asked by watershed managers today include:

How can I evaluate the condition of my watershed?

How should I formulate the environmental and social goals for my watershed?

What is the benefit achieved from widespread implementation of innovative BMPs?

What technical analyses or models, if any, are required for performing my watershed study?

What is the most effective mix of management techniques for achieving my environmental goals?

What is the most cost-effective approach for long-term watershed protection?

Are grants or public funding available to support watershed protection activities?

How can I develop effective public outreach materials for key stakeholders and the community using limited resources?

Tetra Tech Support for Watershed Programs

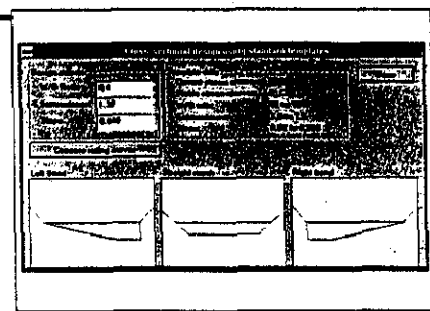
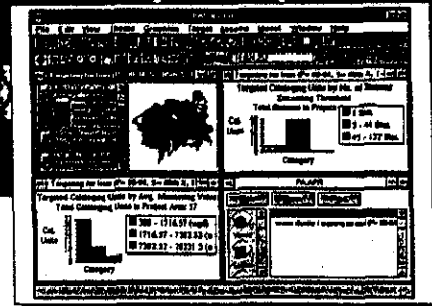
Tetra Tech can provide support for answering these fundamental watershed management questions. We can assist you in organizing and implementing all phases of watershed management programs. Key areas of support are listed below:

- **Goal setting:** what constitutes success; how to set goals, define performance measures, and develop a structured decision process
- **Compliance:** meeting water quality and biological criteria, and other measures of compliance

Attachment "G"

National Water Resources/Program
Management Consultant Overview

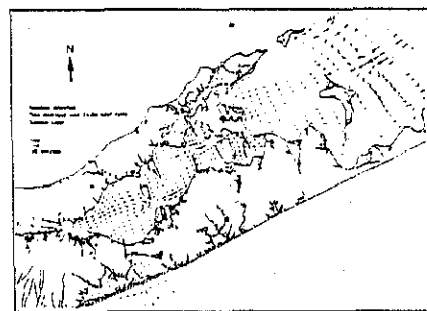
ls to assess the system using available resources.



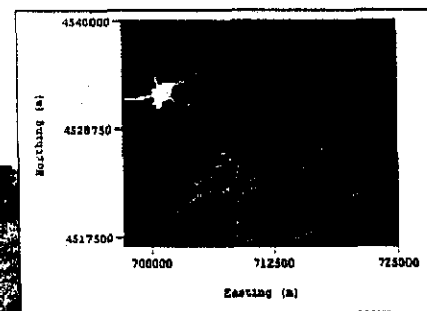
SCRS Stream Restoration Design



Biological Monitoring Workshop



Peconic Estuary Hydrodynamics



Peconic Estuary Dye Visualization

Attachment "G"
National Water Resources/Program
Management Consultant Overview

(continued)

Selected Ongoing and Recent Projects

Comprehensive Watershed Plan Development for the Upper Patuxent, Washington Suburban Sanitary Commission, MD

Loch Raven Watershed Plan Development, Baltimore County, MD

Compendium of Models for Watershed Assessment and TMDL Development, USEPA

BASINS Systems Development, USEPA

Watershed Protection Plan, Guilford County, NC

Bird River Watershed Plan, Baltimore County, MD

Nutrient Management Endpoints Conference and Technical Support, USEPA

Wolf Lake Watershed Assessment and TMDL Development, USEPA

BMP Analysis and Retrofit Study for the Lower Neshaminy Creek Watershed, Bucks County, PA

Stormwater and CSO Operating Plan, City of Wilmington, DE

Stormwater BMP Performance Evaluation and Design Criteria, Prince George's County, MD

Support for Development of Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, USEPA

Norwalk Harbor Hydrodynamic and Water Quality Models, City of Norwalk, CT

Peconic Bay Brown Tide Assessment and Management Plan, Peconic Estuary Program, NY

Aquatic Habitat and Biological Assessment of the Brier Ditch and Mattaponi Creek Watersheds, Prince George's County, MD

Bioassessment/Biomonitoring Program Support for Assessing Nonpoint Source Contamination, State of Florida

National Estuary Program Monitoring Guidance, USEPA

Environmental and Wet Weather Monitoring Program, Prince George's County, MD

N-Loading Impacts of Domestic Septic Systems Within the Patuxent River, Prince George's County, MD

On-site Wastewater Treatment and Design Manual Update, USEPA

State and Local Guide to Environmental Program Funding Alternatives, USEPA

Regional Public Outreach for the Delaware Bay Watershed, Delaware River Basin Commission

Support for the Development of Environmental Indicators of Water Quality in the US, USEPA

For more information, call (703) 385-6000.

Local-scale actions can result in basinwide benefits.

Tetra Tech has developed and applied a suite of watershed tools to support analyses at multiple scales—from a single development site to a broad regional assessment. This tool box is always expanding as we continue to support our clients in watershed-based activities. Particular emphasis is being placed on developing tools that address nontraditional stressors and expand the overall capabilities of the tool box. In developing tools, we take full advantage of emerging technologies in software, geographic information systems, and hardware to provide our clients with credible, efficient, and easy-to-use applications.

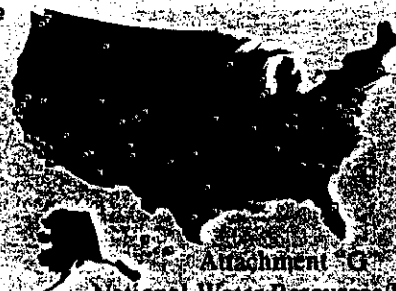
A Sampling of Tetra Tech Watershed Tools

BASINS	Integrated watershed assessment, targeting, and modeling tool
WSTT	Screening and targeting tool including multicriteria watershed ranking system
EFDC/HTM	3-D hydrodynamic and water quality receiving water model
HSPF-GIS	Linked GIS and HSPF modeling system
QUAL2E	Windows-based QUAL2E for steady state stream and river systems
SCRS	A decision support system for stream assessment and restoration
W-SWMM	Windows-based SWMM modeling system for urban watersheds
SAM	Site Assessment Model for detailed local-scale BMP evaluations
Nomograph	Graphical BMP evaluation technique derived from model applications

About Tetra Tech

Tetra Tech is a publicly owned, full-service environmental engineering and sciences firm. Founded in 1966, Tetra Tech has over 70 offices nationwide developing innovative solutions to complex environmental problems. Clients include federal, state, and local government agencies, and private clients, who are concerned with finding effective means for protecting the environment. The Fairfax, Virginia and Owings Mills, Maryland, offices of Tetra Tech have more than 80 staff members specializing in all phases of watershed assessment.

Disciplines represented include engineering (civil, sanitary, chemical, environmental, agricultural), hydrology, chemistry, toxicology, ecology, biology, information sciences, public health, geology, oceanography, urban and master planning, and graphic design.



Attachment "G"
National Water Resources Program
Management Consultant Overview



Source Water Assessment and Protection

Managing drinking water supplies to protect public health



Source water assessment and protection requires new responsibilities for water utilities, municipalities, and states to delineate the area contributing water to the drinking water supply, to identify contaminant sources, and to assess the susceptibility of the water system to contamination.

The Safe Drinking Water Act (SDWA) Amendments of 1996 contain a significant number of new provisions for the U.S. Environmental Protection Agency (EPA), the states, water suppliers, and the public. Key among the changes is a new emphasis on source water protection. A major provision of the SDWA is a requirement that states develop programs for delineating the source waters of public water systems and for assessing the susceptibility of these source waters to contamination. The state program guidance was released by EPA on August 6, 1997.

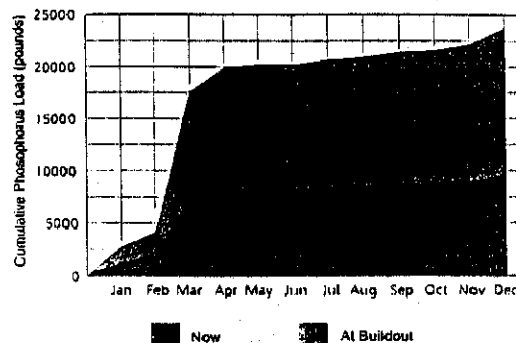
As a result of the 1996 amendments, source water protection has become a national priority. EPA has set a goal that:

by the year 2005, 60% of the population served by community water systems will receive their water from systems with source water protection programs in place.

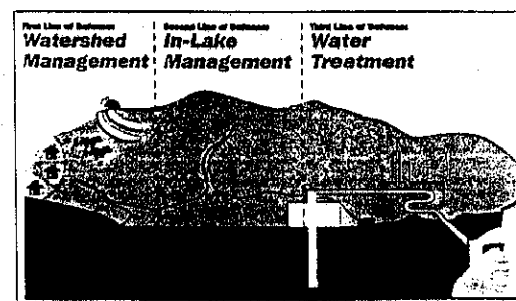
This ambitious goal will require EPA, states, water utilities, associations, other federal agencies, and the public to work cooperatively in conducting source water assessment and protection programs for all public drinking water supply systems. Altogether, there are more than 180,000 water systems in the United States serving over 250 million people.¹ Of this total, community water systems supply drinking water to over 243 million people. Eighty-five percent of the community systems (46,500) are considered by EPA to be small, serving less than 3,300 persons each. In 1996, 8.6 percent of the public drinking water systems reported a violation of one or more drinking water standards.

A microbiological contamination outbreak caused by *Cryptosporidium* in Milwaukee during 1993 resulted in 50 deaths and the illness of 400,000 people. Other microbiological contaminants such as fecal coliform can affect drinking water supplies, resulting in a requirement to boil water before drinking it.

A State Source Water Assessment Program (SWAP) will include methods and approaches to (1) delineate source water protection areas, (2) conduct inventories of potential contamination sources, and (3) conduct a susceptibility analysis. Each state will have the flexibility to develop a SWAP fashioned to its specific conditions. The act requires that assessments for each public water system must be completed within 2 years after EPA approval of the state's program.



Increased nutrient loading to Cane Creek Reservoir



Planning for multiple barrier protection of source waters

Delineations for groundwater supplies will be based on criteria developed by each state in its approved Wellhead Protection Program. EPA defines source water protection areas for groundwater-based systems as synonymous with Wellhead Protection Areas. Surface water systems will primarily be delineated based on the topographic boundaries of the lake, reservoir, stream, or river. EPA has also proposed that states consider "conjunctive delineation" to define public water supplies that receive recharge from both groundwater and surface water.

The guidance identifies linkages to other state and federal water quality programs to provide the financial, technical, and informational resources necessary to conduct source water assessments. Source water assessments can be coordinated with other activities such as watershed-type surveys, sanitary surveys, state Wellhead Protection Programs, state pesticide management plans, and efforts under other EPA and state programs to

¹USEPA, 1995 Community Water Supply Survey.

provide the information needed to maintain and improve drinking water quality. This information is also needed to ensure the limited funds available are used in the most efficient manner possible.

Public participation in the development of a SWAP is required. States will create mechanisms such as advisory committees, public meetings, workshops, and newsletters to obtain input from the public during the development of each SWAP. In addition, results of each utility delineation and assessment must be made available to the public.

Source Water Protection emphasizes community-based protection for public drinking water supplies. Over the next 2 to 3 years, states, local governments, and water utilities will look to the public to become more active in protecting drinking water supply sources.

Source Water Assessment and Management Services

- Delineation of source water protection areas (surface water and groundwater)
- Watershed and recharge area mapping
- Contaminant source identification and assessment (chemical/biological)
- Contaminant source inventories
- Land use buildout analysis
- Susceptibility analysis
- Vulnerability assessments
- Risk assessments
- Management frameworks (federal/state/regional/local)

Source Water/Watershed Assessment and Management Tools

- BASINS
- GIS/database management
- Nonpoint source assessments
- Monitoring/modeling
- Total Maximum Daily Loads (TMDLs)
- Management controls/protection measures
- Stakeholder participation in source water assessment programs
- Consumer Confidence Reports
- Training
- Facilitation

Total Water Management

- Long-range water resource planning and management
- Integrated land and water resource management
- Efficient water allocation for competing uses
- Stakeholder involvement
- Water conservation, reuse, source protection

Watershed Studies & Strategic Plans

- Basin planning
- Source water protection
- Ecosystem management
- Development standards
- EIS
- Habitat restoration

About Tetra Tech

Through a network of more than 100 offices and 3,000 employees worldwide, Tetra Tech provides comprehensive environmental and water resources consulting services to government and industry.



Selected Ongoing and Recent Tetra Tech Source Water Protection Projects

Project Title	Client
Loch Raven Watershed Plan Development	Baltimore County, MD
Cryptosporidium spp. Oocysts and Giardia spp. Cyst Study for the Occoquan Reservoir and Watershed	Fairfax County Water Authority, VA
GIS Applications and Integration of Monitoring and Modeling in Support of Watershed and Stormwater Management	Prince George's County, MD
Watershed Protection Data Study for Guilford County	Guilford County, NC
Cane Creek Watershed Study Public Outreach	Orange Water and Sewer Authority, NC
Better Assessment Science Integrating Point and Nonpoint Sources (BASINS)	U.S. EPA, Office of Science and Technology
Watershed Management and Modeling Training	U.S. EPA
Comprehensive Watershed Plan Development for the Upper Patuxent River	Washington Suburban Sanitary Commission, MD
Nitrogen Loading Impacts of Domestic Septic Systems within the Patuxent River	Prince George's County, MD
Water Resources Management Plan for the Lower East Fork of the Little Miami River	Clermont County, Ohio
Falls Lake Watershed Study	North Carolina Department of Environment, Health, and Natural Resources



For more information, contact:

Tetra Tech, Inc. ■ 10306 Eaton Place, Suite 340 ■ Fairfax, VA 22030
Tel: (703) 385-6000 ■ Fax: (703) 385-6007 ■ NASDAQ: WATR

Attachment "G"
National Water Resources/Program
Management Consultant Overview

Watershed Assessment

BASINS

A cost-effective tool for watershed assessment and management

BASINS is a
multipurpose
environmental analysis

system for use by
regional, state, and local
agencies in performing
watershed- and water
quality-based studies.

It was developed by
Tetra Tech for USEPA's

Office of Water to
facilitate examination of

environmental
information support

analysis of environmental

systems and provide a

framework for assessment

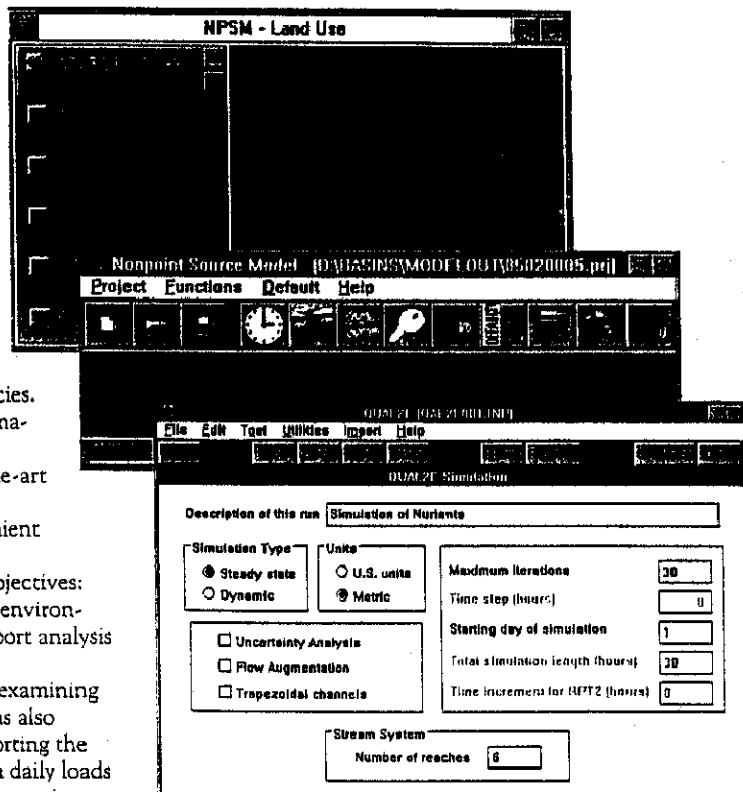
of water quality

and water quality

The U.S. Environmental Protection Agency's water programs and their counterparts in pollution control agencies have increasingly emphasized watershed- and water-quality-based assessment and integrated analysis of point and nonpoint sources. Better Assessment Science Integrating Point and Nonpoint Sources (BASINS) is a system developed to meet the needs of such agencies. It integrates a geographic information system (GIS), national watershed data, and state-of-the-art environmental assessment and modeling tools into one convenient package.

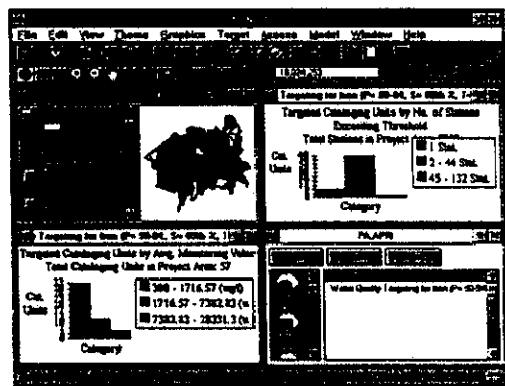
BASINS addresses three objectives: (1) to facilitate examination of environmental information; (2) to support analysis of environmental systems; and (3) to provide a framework for examining management alternatives. It was also conceived as a system for supporting the development of total maximum daily loads (TMDLs). Developing TMDLs requires a watershed-based approach that integrates both point and nonpoint sources, and BASINS can support this type of approach for the analysis of a variety of pollutants. It can also support analysis at a variety of scales, using tools that range from simple to sophisticated.

Overcoming the lack of integration, limited coordination, and time-intensive execution typical of more traditional assessment tools, BASINS makes watershed and water quality studies easier by bringing key data and analytical components together "under one roof."



BASINS Models

The heart of BASINS is its suite of interrelated components essential for performing watershed and water quality analysis. These components are grouped into three categories: (1) national databases with Data Extraction tool and dynamic Project Builder tool; (2) assessment tools (TARGET, ASSESS, and Data Mining) that address needs ranging from large-scale to small-scale; and (3) watershed and water quality models, including NPSM_HSPF (ver. 10), TOXIRoute, and QUAL2E (ver. 3.2). BASINS' databases and assessment tools are directly integrated within an ArcView 2.1 GIS environment. By using GIS, a user can fully visualize, explore, and query to bring a watershed to life. The simulation models run in a Windows environment, using data input files generated in ArcView.



BASINS Targeting Analysis

Attachment "G"
National Water Resources/Program
Management Consultant Overview



Tetra Tech, Inc., Fairfax, Virginia

TARGET is a watershed targeting tool that allows environmental managers to make a broad-based evaluation of a watershed's water quality and/or point source loadings. It operates on a larger scale, addressing an area such as a region or a state.

ASSESS operates on a single watershed (cataloging unit) or a limited set of watersheds and focuses on the status of specific water quality stations or discharge facilities and their proximity to waterbodies.

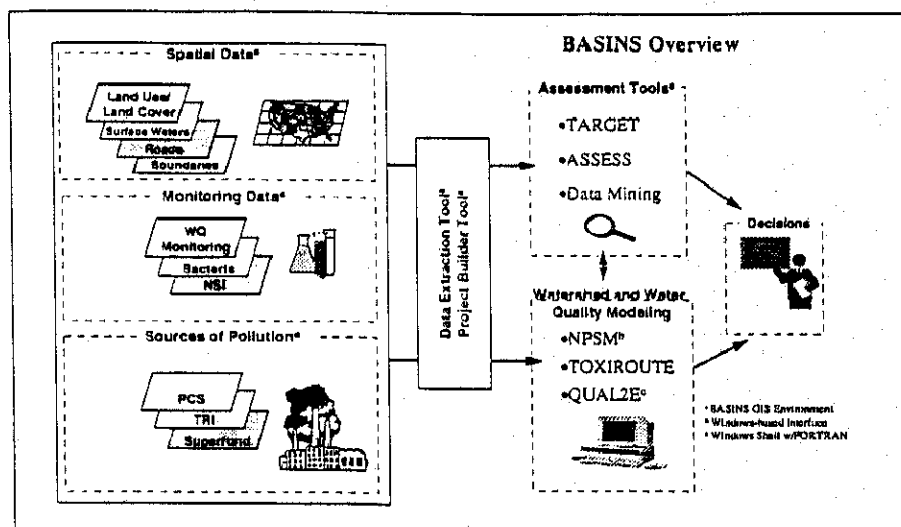
Data Mining dynamically links different data elements using a combination of tables and maps. This unique dynamic linkage of data elements adds a significant informational value to the raw data on water quality and loadings. This process makes Data Mining a powerful tool that can assist in the integration and environmental interpretation of both geographic and historical information simultaneously.

Three models are integrated into BASINS within an ArcView GIS environment to allow the user to assess watershed loadings and receiving water impacts at various levels of complexity. ArcView geographic data preparation, selection routines, and output visualization streamline the use of the models.

Nonpoint Source Model (NPSM) estimates land use nonpoint source loadings for selected pollutants at a watershed (cataloging unit) scale. The model uses shapefile landscape data such as watershed boundaries and land use distribution to automatically prepare many of the input data it requires. The NPSM combines a Windows-based interface with EPA's Hydrologic Simulation Program-FORTTRAN model, and is linked to ArcView.

QUAL2E model is a one-dimensional, steady-state water quality and eutrophication model. It is integrated with ArcView through a Windows-based interface, and it allows fate and transport modeling for both point and nonpoint source loadings. Nonpoint source loadings can be generated by NPSM and then fed into QUAL2E by using an internal procedure.

TOXIRoute provides a screening-level stream routing model that performs simple dilution/decay calculations under mean or low flow conditions for a stream system within a given watershed (cataloging unit). TOXIRoute can also integrate nonpoint source loadings calculated by NPSM within ArcView, as well as point source loadings computed from the effluent monitoring data.



Data Tools

Data Extraction
Project Builder

Spatially Distributed Data

Land use/land cover
Urbanized areas
Populated place location
Reach File, version 1 (RF1)
Major roads
USGS hydrologic unit boundaries (accounting unit)
USGS hydrologic unit boundaries (cataloging unit)
Drinking water supply (DWS) sites
Dam sites
EPA region boundaries
State boundaries
County boundaries

Environmental Monitoring Data

Drinking water supply (DWS) sites
Water quality monitoring station summaries
Bacteria monitoring station summaries
Weather station sites
USGS gaging stations
Dam sites

Point Source Data

Permit Compliance System (PCS) sites and computed loadings
Industrial Facilities Discharge (IFD) sites
Toxic Release Inventory (TRI) sites, 1992 release
Superfund National Priority List sites

System Requirements

Minimum:

486 IBM-compatible PC, 33-MHz; 75 mb hard disk space; 16 mb RAM plus 16 mb of permanent virtual memory swap space; dual-speed CD drive, MS-DOS 5.0 or better; Windows 3.1 or later; ArcView 2.1.

Preferred:

Pentium IBM-compatible PC, 133-MHz; 235 mb hard disk space; 32 mb RAM plus 16 mb of permanent virtual memory swap space; quad-speed CD drive, MS-DOS 5.0 or better; Windows 3.1 or later; ArcView 2.1.





Watershed Management

Community Outreach

Protecting Cane Creek Watershed



For the Orange Water and Sewer Authority, community outreach was critical for communicating the results of a 15-month study of the Cane Creek water supply watershed, and soliciting public input from a broad spectrum of community members on the management options under consideration.

What was this project about?

Orange Water and Sewer Authority (OWASA) owns and operates the Cane Creek Reservoir as one of two principle water supplies for the Towns of Carrboro and Chapel Hill, and portions of Orange County in North Carolina. The reservoir was filled in 1989 and is expected to provide water to the community through the twenty-first century. In January 1994 OWASA began to take steps toward ensuring the long-term quality of the Cane Creek reservoir by appointing a 22-member Watershed Advisory Committee to guide development of a watershed management plan. The Committee helped establish multiple objectives for the plan, several dealing with factors other than water quality (e.g., economics, recreation, community), and participated in a thorough study of the watershed conditions including an evaluation of how well several alternative management scenarios would perform in achieving the objectives. Before deciding on a final strategy, OWASA and the Watershed Advisory Committee agreed to solicit additional community input. Tetra Tech Inc. was hired by OWASA to design and produce outreach materials that would help communicate management alternatives under consideration, and encourage public response so that OWASA could consider public preferences.

What approach did we take?

OWASA and the Advisory Committee understood the importance of reaching out to



OWASA Board presents recommendations to elected officials

the public in different settings to achieve input from a broad spectrum of community members. It was decided therefore to develop a set of materials that could be "taken on the road" for use at several forums: an open house at the OWASA facility, presentations before town councils, and before residents of the Cane Creek watershed. To this end, Tetra Tech designed a series of large but portable poster boards for display on site, an overhead presentation to explain the study findings and solicit public input, and a balloting system to provide a basis for OWASA to compile public responses for comparison of likes and dislikes. OWASA also used newspaper, radio, newsletter articles, and an Internet website to educate the community about the management choices.

The poster board display allowed community members to browse through key study findings at their own pace, answering the following questions:

- What are current conditions in the Cane Creek Watershed (e.g., land use, water quality, etc.)?
 - What's the impact of projected growth?
 - Why not just treat the water?
 - What could be done to minimize pollution entering the lake?
- Attachment "G"

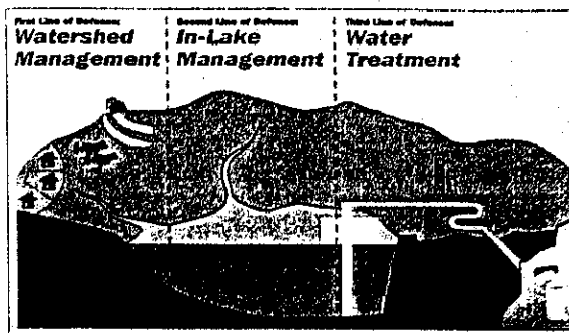


National Water Resources/Program
Management Consultant Overview

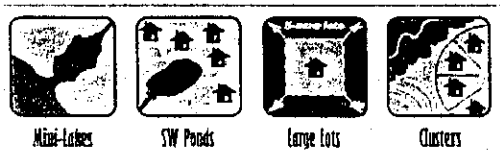


Community members review and discuss study results

- Given the advisory committee's work, what are four options that could prevent degradation of the water supply?
- What are the pros and cons of each option?
- How would this change the way watershed residents' property could be developed?
- How would the watershed change?
- What would this added protection cost OWASA customers, both the total cost over 50 years and the average increase in monthly utility bills?
- What's the level of uncertainty of achieving the water quality goal?



OWASA uses three lines of defense for safe, cost-effective water supply protection



Four primary watershed management options

Additionally, the overhead presentation provided the public with the opportunity to hear about the study from OWASA and Advisory Committee members, and to ask questions about the findings and recommendations. For the open house and public meetings, participants were given ballots that allowed them to rank and weight their preferences among management alternatives under consideration, and to provide input on possible solutions to aspects of alternatives that they didn't like.

What were the Results?

OWASA received input from a broad spectrum of community members including residents in the watershed, OWASA customers, planning agencies, and local government officials. Based on the public input, a preferred and refined management alternative was sent to and adopted by the OWASA Board of Directors. Provisions of the plan include land acquisition; assistance to farmers for implementing best management practices; modifying the water supply intake structure in the reservoir; and modifying county zoning ordinances for the watershed to further restrict housing density and support open space conservation. One critical provision to residents in the watershed is the offer by

OWASA to provide land to the Orange County Board of Education for use as a school site, demonstrating good will toward the community that does not benefit from the water supply.

Implementation of the plan is proceeding well. OWASA recently received a \$1 million grant from the North Carolina Clean Water Trust Fund to support land acquisition and purchase of conservation easements. Budgets are in place for modification of the water supply intake structure, BMP implementation support, and other plan-related projects. The county is moving forward with a rezoning proposal, and public hearings are expected in the fall of 1998.



Tetra Tech facilitates public discussion of options

Where can I learn more?

You can learn more about this project or related watershed management and outreach support by contacting one of the Tetra Tech authors at our Research Triangle Park, NC office (ph. 919/485-8278; fax 919/485-8278; email: jtrevor@gte.net).

Trevor Clements, Associate Director, Tetra Tech, Inc.*
 Kimberly Brewer, Principal Planner, Tetra Tech, Inc.
 Jon Butcher, Principal Engineer, Tetra Tech, Inc.
 Ed Holland, Director of Planning and Development for the Orange Water and Sewer Authority

*Prepared for Watershed 98 WEF Specialty Conference by Tetra Tech, Inc., P.O. Box 14409, Research Triangle Park, NC 27709 U.S.A.





Environmental Public Outreach

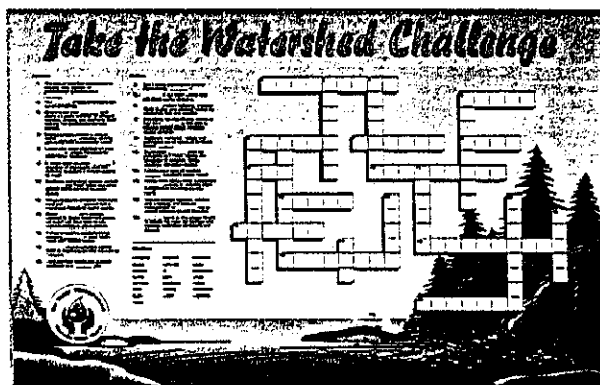
Watershed protection through information, education, and action



*Tetra Tech provides
support to federal,
state, and local
organizations in
developing and
implementing public
outreach programs on
both local and
national scales.*



Local watershed events strengthen partnerships in the community.



Interactive outreach tools make learning about watershed issues fun.



Children can make a difference in watershed protection.

Because everyone lives, works, and plays in a watershed, our actions directly affect the quality of the water and natural resources we need and use. Unfortunately, every day each of us contributes in a small way toward polluting our watersheds. It is important to demonstrate to communities that they have a "stake" in their watershed and can change their behaviors both as individuals and as a community.

Effective public outreach is the first step toward getting people to change their behavior and take better care of their environment. With environmental budgets shrinking and the demand for environmental action growing, we need to maximize our ability and opportunity to change human behavior through the delivery of effective, cost-efficient, and targeted outreach efforts.

Public outreach can be used in many ways to address watershed protection issues.

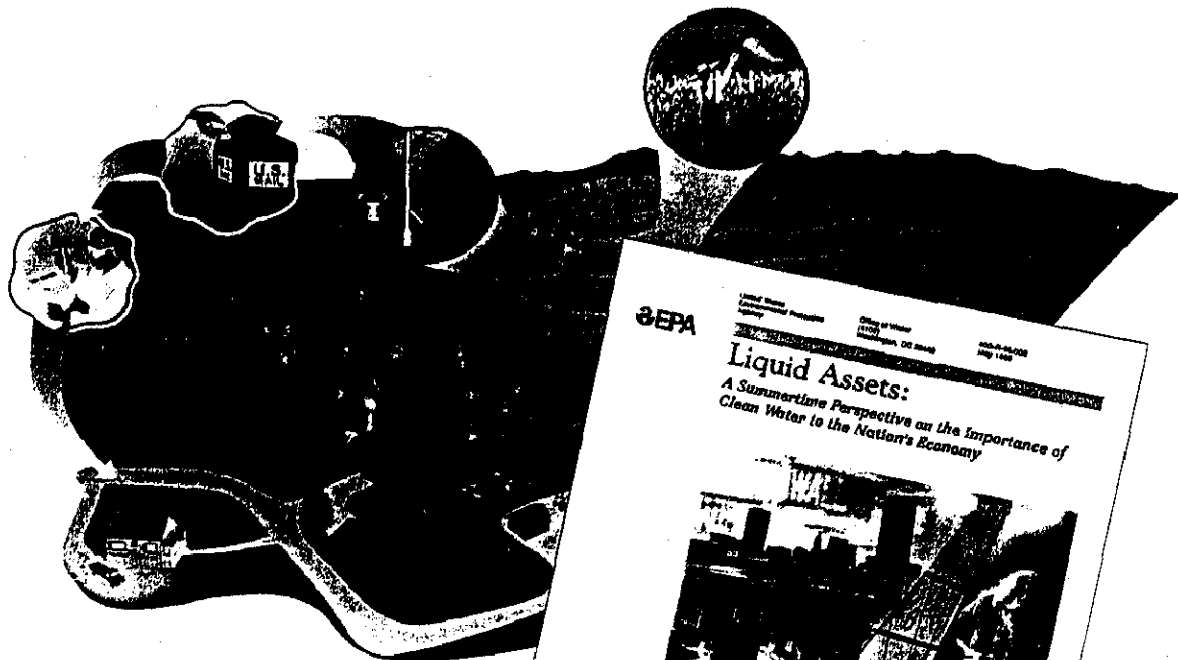
- Garner support of local stakeholders and officials.
- Provide a mechanism to bring together disparate groups under a unified theme.
- Educate children and the general public on watershed issues in the community.

Tetra Tech works with state and local organizations to supplement and enhance, not replace, their existing outreach efforts. By taking advantage of existing local networks and programs, Tetra Tech maximizes resource dollars and works with the members of the community responsible for ultimately implementing the outreach program.

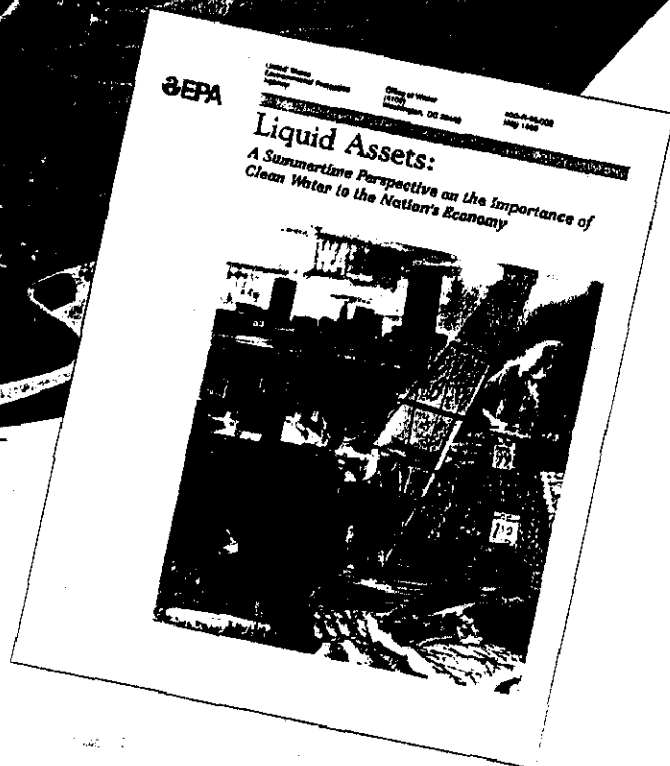


When developing an outreach program, several key questions must be asked:

- **What is the message?**
Each message should be as narrowly defined as possible. Several messages should be developed for a targeted outreach program.
- **Who is the audience?**
The outreach effort should be tailored to the right audience.
- **What vehicles will I use to get the message out to the right audience?** Distribution mechanisms vary depending on the audience.
- **How will I know if this program is effective?** All outreach programs should provide feedback mechanisms such as evaluation forms, surveys, and follow-up phone calls to determine what was effective.



Effective public outreach presents technical information in a creative format suitable for a variety of audiences.



Creative concepts can be used to communicate the economic importance of clean water.

Selected Outreach Products Developed by Tetra Tech

- A water conservation document entitled *Cleaner Water Through Conservation*, targeted at reducing nonpoint source pollution by reducing water consumption.
- A "Watershed Challenge" crossword puzzle poster geared toward educating the general public on watershed pollution.
- A nontechnical slide show entitled "If We Lived In A Perfect World," which is used by watershed associations, teachers, and others for stimulating discussion on nonpoint source pollution.
- A series of 2-page fact sheets on nonpoint source pollution for the general public.
- *Liquid Assets: A Summertime Perspective on the Importance of Clean Water to the Nation's Economy*, a 25-page booklet that highlights the importance of clean water to the economy.
- "It's Your Watershed, Handle With Care" logo and accompanying materials such as tote bags, magnets, and fact sheets that highlight watershed pollution issues.

About Tetra Tech

Through a network of more than 100 offices and 3,000 employees worldwide, Tetra Tech provides comprehensive environmental and water resources consulting services to government and industry.

Environmental Public Outreach Capabilities

Meeting/Workshop Support

Facilitation
Training
Events
Roundtable discussions

Products

Slide shows
Newsletters
Pamphlets/brochures
Fact sheets
Guidance manuals
Public service announcements
Electronic media

Personnel

Graphic designers
Conference planners
Environmental scientists
Media specialists



For more information, contact:

Tetra Tech, Inc. • 10306 Eaton Place, Suite 340 • Fairfax, VA 22030
Tel: (703) 385-6000 • Fax: (703) 385-6007 • NASDAQ: WATR

Attachment "G"
National Water Resources/Program
Management Consultant Overview



Biological Assessment

Cost-effective tools to evaluate ecosystem health and condition of watersheds

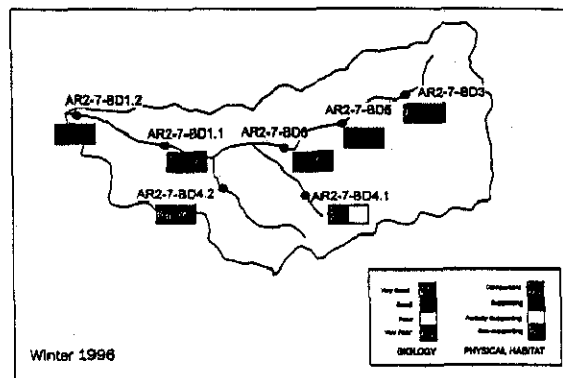


Bioassessment is the evaluation of an ecosystem using integrated assessments of habitat and biological communities in comparison to empirically defined reference conditions.

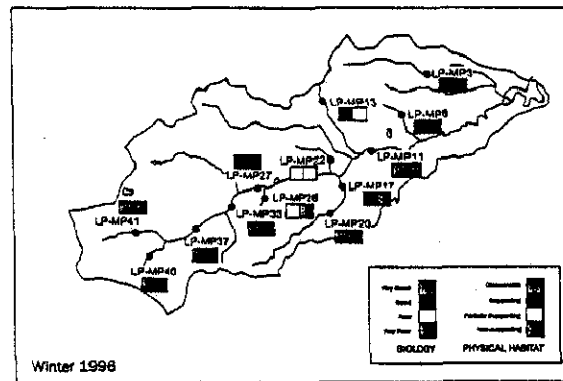
The Clean Water Act requires the federal and state governments to "restore and maintain the chemical, physical and biological integrity of the Nation's waters." The U.S. EPA has initiated a biological criteria program that includes development of technical guidance documents for biological criteria for surface waters (e.g., streams, rivers, lakes and reservoirs, estuaries and coastal areas, and wetlands). Use of biological criteria will provide a direct assessment of the condition of the aquatic community and the detection of cumulative impacts on aquatic life from multiple stressors and land uses in the Nation's watersheds.

Bioassessments can be used to establish baseline conditions for biological criteria and assess impacts from human activities, to assess the effects of physical habitat degradation, and to assist in ranking specific water bodies or watersheds for remedial action. By performing assessments over an extended time period, trends in pollution and its biological effects can be determined. Bioassessments can lead to substantially more accurate water resource assessments by explicitly linking biological and physical habitat evaluations with chemical water quality determinations. Tetra Tech offers extensive experience in developing and implementing state-of-the-art science strategies for aquatic and terrestrial ecosystems.

Building on prior work in methods development for biological monitoring, Tetra Tech is producing guidance for design and implementation strategies for biomonitoring programs. These programs are designed to optimize the gathering and interpretation of valid technical information within the logistical constraints of concerned state agencies. Cost-effective monitoring strategies (or technical guidance for such strategies) have been or will be developed for the evaluation of estuarine and freshwater point or nonpoint source degradation. Technical issues that have been addressed and for which draft recommendations have been made include selection of target habitat for macroinvertebrate assemblage evaluations, seasonality considerations in study design, habitat assessments, reference site regionalization, and quality assurance.



Condition of streams in the Brier Ditch watershed



Condition of streams in the Mattaponi Creek watershed



Ecological subregions: A framework for bioassessment

Additional draft guidance that details material and personnel resources necessary for bioassessment and/or biocriteria programs at different levels of intensity has been developed. This work is the follow-up to the development of the Rapid Bioassessment Protocols and training workshops held across the country.

Biological Assessment Capabilities

Bioassessment strategy development

Biological surveys

Habitat assessment

Regionalization and reference condition evaluation

Biocriteria development

Aquatic life use determinations

Wetland delineations and riparian studies

Bioassessment training

Ecological modeling

Ecological risk assessment

Watershed management

Ecological restoration

Rapid Bioassessment Approach. Tetra Tech assisted the U.S. EPA in developing the rapid bioassessment approach for streams and is now developing similar approaches for other water body types. The rapid bioassessment concept has also been modified by Tetra Tech for use at hazardous waste sites.

Development of General Strategies for Bioassessment and Biomonitoring. Tetra Tech is producing guidance for design and implementation strategies for biomonitoring programs designed to optimize the gathering and interpretation of valid technical information within the logistical constraints of concerned state agencies.

Evaluation of Combined Sewer Overflows Using Rapid Bioassessment Protocols. Tetra Tech developed a study design using the rapid bioassessment approach to evaluate the effects of combined sewer overflows on the biological integrity of river systems in Maryland, Ohio, and New York.



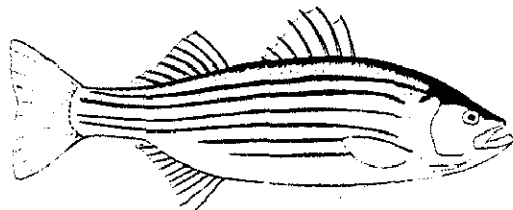
Development of Biological Assessment Protocols for Lakes. Tetra Tech has provided technical support to EPA to develop bioassessment protocols for lakes and reservoirs. These protocols include selection, classification, and characterization of reference conditions; selection of biological metrics and sampling methodology; and selection of habitat assessment metrics and habitat sampling methodology.

About Tetra Tech

Through a network of more than 100 offices and 3,000 employees worldwide, Tetra Tech provides comprehensive environmental and water resources consulting services to government and industry.

Tetra Tech's **Biological Research Facility** is housed on the University of Maryland's Baltimore County campus. Capabilities of the facility include:

- Biological sample processing
- Invertebrate and ichthyoplankton taxonomy
- Standard freshwater and saltwater bioassays
- Whole sediment and pore water toxicity testing
- Resident and indigenous species tests
- Toxicity identification/reduction evaluations
- Development of site-specific water quality criteria
- Stream and lentic microcosms



For more information, contact:

Tetra Tech, Inc. ■ 10045 Red Run Blvd., Suite 110 ■ Owings Mills, MD 21117
Tel: (410) 356-8993 ■ Fax: (410) 356-9005 ■ NASDAQ: WATR

Attachment "G"

National Water Resources/Program
Management Consultant Overview



Ecological Risk Assessment

Cost-effective tools to evaluate ecosystem health and condition of watersheds



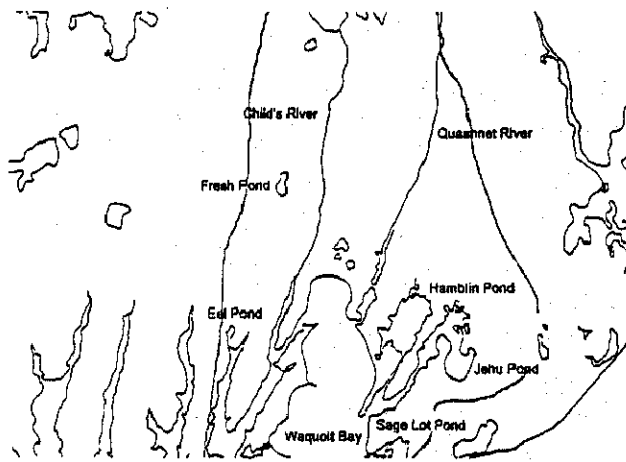
Ecological risk assessment is a systematic process that evaluates the likelihood that adverse effects are occurring or could occur in a population, community, or ecosystem as the result of exposure to a biological, chemical, or physical stressor or a combination of stressors.

Ecological risk assessment, a relatively new tool for environmental management, is growing in importance as federal agencies and the private sector come to rely on it for managing our effects on natural resources. Risk assessment attempts to predict the risks of adverse effects on valued endpoints using several management scenarios. It is necessary because decisions must be made in the face of uncertainty and because it is impossible to eliminate all environmental risks. Ecological risk assessment evolved from human health risk assessment, used to evaluate health risks from environmental chemicals and toxic waste disposal. The initial development of ecological risk assessment was driven by concerns related to Superfund and by other toxic waste problems.

Ecological risk assessments can be initiated by concerns about sources, stressors, or endpoints. Endpoints are measurable reflections of environmental values, such as water quality, habitat quality, biodiversity, biological integrity, and others. Stressors are substances or changes that might have an effect on the valued endpoints; examples include toxic substances, sedimentation, flooding, and nutrients. Sources are human activities or structures that cause the stressors to be released, such as pesticide applications, construction, impervious surfaces, or sewage treatment plants.

Source-initiated risk assessments examine a single source, such as a Superfund site, and estimate risks due to all stressors emanating from the source. Source-initiated ecological risk assessment is increasingly a part of environmental impact assessment under the National Environmental Policy Act (NEPA). The source is the new structure or activity, with several stressors and effects associated with it, and the risk assessment can examine alternative management options. Tetra Tech has performed many source-initiated risk assessments.

Stressor-initiated ecological risk assessment takes a single stressor, such as a new pesticide or a new chemical process, and examines risks due to its use. An example is the risk assessment of granular carbofuran.



Waquoit Bay and surrounding watershed are the focus of a multiple-stressor ecological risk assessment.



The Massachusetts Military Reservation, a Superfund site in the upper western region of Cape Cod, is leaching groundwater contaminated with volatile solvents that could cause adverse effects on biological resources in the Waquoit Bay watershed.

Endpoint-initiated ecological risk assessment takes one or more endpoints and examines all stressors and their sources that potentially affect the endpoints. Examples include endangered species risk assessments, ecosystem assessments, and watershed risk assessments. Tetra Tech is assisting EPA in pioneering the development of watershed-based ecological risk assessment.

A critical component of all ecological risk assessments is continuing communication among interested parties in the risk assessment, such as managers, resource agencies, businesses and residents potentially affected, and the technical

Attachment "G"
National Water Resources/Program
Management Consultant Overview



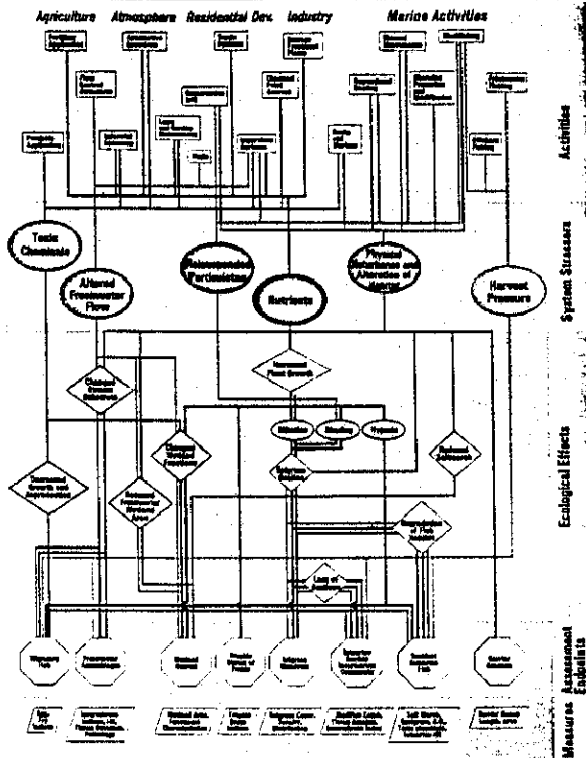
Tetra Tech, Inc., Fairfax, Virginia

persons who will perform the analyses and assessment. For example, in endpoint-based risk assessments, the interested parties must agree on a set of management goals for the watershed or ecosystem. The management goals are then used to identify assessment endpoints. In source- and stressor-based assessments, the interested parties must likewise agree to the assessment endpoints, although management goals might not be an issue in these risk assessments.

Selected Tetra Tech Ecological Risk Assessment Projects

- Tetra Tech provided technical support to EPA's Office of Science and Technology (OST) for the development of case studies for ecological risk assessment. The case studies were comprehensive risk assessments for use in watershed management and included five watersheds ranging in size from a small coastal embayment to large seventh-order rivers. Tetra Tech provided assistance to the Technical Panel, composed of leaders of each of the watershed workgroups, as well as to the workgroups themselves. The case studies will be used to develop guidance for watershed-level, comprehensive ecological risk assessments of multiple stressors, including physical and habitat stressors as well as the more traditional chemical stressors.
- Tetra Tech performed the risk analysis for the Waquoit Bay watershed risk assessment. Waquoit Bay, a small estuary on the south shore of Cape Cod, is subject to several stressors resulting from population growth and suburbanization and from groundwater contamination at an old military base. Endpoints of the risk assessment were identified from management goals and included anadromous fish, freshwater biota, wetlands, trophic state of ponds, estuarine eelgrass beds, estuarine benthic invertebrates, estuarine fish, and barrier beaches. Tetra Tech's comparative risk analysis, using a multiple criteria decision analysis, identified nutrient enrichment and habitat alteration as the principal stressors. Tetra Tech developed a GIS-based predictive, empirical model to estimate critical loads of nutrients to the estuary to predict the future risks and uncertainty of watershed development and management.
- Tetra Tech is performing the risk analysis for the Clinch River watershed risk assessment. The Clinch River, in southwestern Virginia, supports more imperiled mussel and fish species than any other river in North America. The river's unique ecological system is stressed by historical and present-day coal mining, agricultural nonpoint source pollution, and new construction and development. Tetra Tech will enhance GIS-based data by using multivariate statistical analyses of sources and stressors to assess risks to identified assessment endpoints.
- Tetra Tech is developing a source-initiated ecological risk assessment of sand and gravel dredging operations in the Ohio and Allegheny Rivers, as part of NEPA documentation for dredging permits issued by the U.S. Army Corps of Engineers. Tetra Tech will elicit management goals for the river from the stakeholders, and will develop a problem formulation and an initial risk assessment with existing information.
- Tetra Tech has a 3-year grant from the Water Environment Research Foundation to examine the effects of multiple stressors on aquatic ecosystems. Assessing the effects of multiple stressors on aquatic ecosystems and assigning proportions of the effects to component stressors are critical for optimal management and restoration of aquatic ecosystems. The objectives of the research are to identify and characterize multiple stressors in waterbodies (from discharges, nonpoint sources, habitat alteration, and watershed-scale land use) and to develop predictive models for assessing biological degradation of aquatic habitats due to multiple stressors.

Waquoit Bay Watershed Conceptual Model



This conceptual model was developed to guide the ecological risk assessment for the Waquoit Bay watershed.

About Tetra Tech

Through a network of more than 100 offices and 3,000 employees worldwide, Tetra Tech provides comprehensive environmental and water resources consulting services to government and industry.

Ecological Risk Assessment Capabilities

Products

Documents
Computer models
Slide shows
Training manuals

Personnel

Environmental scientists
Aquatic toxicologists
Ecological risk assessors
Computer modelers
GIS specialists
Statisticians
Graphic designers



For more information, contact:

Tetra Tech, Inc. • 10045 Red Run Blvd., Suite 110 • Owings Mills, MD 21117
Tel: (410) 356-8993 • Fax: (410) 356-9005 • NASDAQ: WATR

Attachment "G"

National Water Resources/Program
Management Consultant Overview

James Cornelius, P.E.
Regulatory Specialist

Areas of Expertise

- One-Stop Permitting Development
- Lake Tahoe Regulatory and Water Quality Issues
- Water Quality Protection and Compliance including NPDES Permits
- Wastewater Facilities planning/design/construction
- Solid/Hazardous Waste Management including landfill regulatory compliance
- Non-Point Source and Storm Water Management
- Site Remediation, including use of Innovative Technologies
- Mining Waste Management and Regulatory Compliance
- Land Restoration, Redevelopment, and Reuse Programs (Brownfields Programs)

General Background

Mr. Cornelius has over 37 years of professional experience as an environmental engineer, including over 25 years with the California State Water Resources Control Board (SWRCB). Mr. Cornelius has extensive experience in one-stop permitting development, site remediation, innovative technologies, water quality protection and compliance, wastewater facilities planning, design, and construction, non-point source and storm water management, mining waste management, land reuse, and redevelopment and restoration programs. During his tenure with the SWRCB, Mr. Cornelius served from 1986 through 1996 in the role of Chief of the Regulatory Program Branch with statewide responsibility for hazardous/solid waste programs, underground and above ground storage tank programs, site remediation programs, and the regulation of mining waste within the State of California.

Mr. Cornelius also had a responsible role in the development and implementation of the California Clean Water Grants Program. In addition, Mr. Cornelius served as the SWRCB's Representative on numerous local, state, and national forums on all aspects of Water Quality Protection. Mr. Cornelius joined Tetra Tech, Inc. in November 1997 to provide regulatory permitting/compliance and environmental engineering expertise for water quality and site remediation.

Mr. Cornelius has gained extensive experience with the Lake Tahoe Basin public health, environmental, and regulatory issues since 1961. Mr. Cornelius conducted inspections, developed reports, prepared enforcement actions, and served as the California Department of Public Health's expert witness during court actions relative to the public health threat from discharging waste water within the Lake Tahoe Basin. Mr. Cornelius was a team member for a California Department of Public Health Study, "Lake Tahoe Basin Water Quality Survey." This study included extensive field sampling and laboratory analysis. The study included 57 sampling points along the California side of Lake Tahoe and was conducted during the spring and fall. Mr. Cornelius also conducted inspections and analysis of all public drinking water systems in California which utilized Lake Tahoe as their water source. In addition, Mr. Cornelius also served on the task force that developed the initial Lahontan Regional Water Quality Control Board's "Lake Tahoe Water Quality Control Policy." Mr. Cornelius served on the team that conducted the investigation and prepared a California Department of Public Health Report, entitled "A Study of Future Solid Waste Management in the Lake Tahoe Area."

Employment History

Tetra Tech, Inc., Regulatory Specialist, 1997 to Present

Institute of Environmental Solutions (IES), Principal Environmental Engineer, 1996 to 1997

Dames & Moore, Inc., Environment Engineering Manager, 1996

SWRCB, Principal Water Resources Control Engineer and Chief, Regulatory Programs Branch, Division of Clean Water Programs, September 1986 to December 1995 and Operations Branch, Division of Water Quality, January 1984 to September 1986

SWCRB, Division of Loans and Grants, August 1970 to January 1984

California Department of Public Health, Berkeley, California, August 1960 to 1970

Relevant Experience

Principal Environmental Engineer at Institute of Environmental Solutions (IES), Sacramento, California.

- Regulatory and environmental engineering manager for site remediation, recycling and reuse of contaminated land, relative to the LandTech® Program (a government subsidized applied land restoration program).
- Technical/Regulatory Program Manager for IES's Integrated Management for Brownfields Reuse Program (IMBR) which included mining waste.

Environment Engineering Manager at Dames & Moore, Inc., Sacramento, CA office.

- Team leader for regulatory compliance and environmental engineering for water quality and site remediation projects.

Principal Water Resources Control Engineer and Chief, Regulatory Programs Branch Division of Clean Water Programs, SWRCB, Sacramento, California

- Managed a staff of 140 at the SWRCB and through statewide program managers coordinated the work of 250 Regional Water Quality Control Board (RWQCB) staff at 12 offices statewide.
- Served as the Water Quality Advisor and Staff to Governor Pete Wilson's Military Base Reuse Task Force. (January - August 1994).
- Served as the SWRCB's primary representative on numerous local, state, and national forums on all aspects of site remediation including: The California Base Closure Environmental Committee (1991 - 1994) and the California Military Environmental Coordination Committee (1995). The later included chairing the Site Characterization Subcommittee.
- Managed, through a Section Chief, the California Underground Storage (UST) Regulatory Program including contracts with 21 local oversight agencies (LOPs).
- Managed, through a Section Chief, the UST Cleanup Fund Program. By December 1995, this program had received over 10,000, applications of which 8,000 have been approved. Detailed field reviews have been completed on over 3,700 applications.
- Managed the SWRCB program at U.S. Department of Defense (DoD) facilities. This program required site remediation review at most DoD facilities within California. This program required partnering working with the California Department of Toxic Substances Control (DTSC), the lead State agency for DoD activity.

- During 1995 served as the SWRCB's representative on the Assembly Bill (AB) 2061 Site Designation Committee (SDC). The purpose of AB2061 is to allow a Responsible Party who agrees to carry out a site investigation and remedial action to request the SDC to designate a single state or local agency (the administering agency) to oversee cleanup action for all state and local agencies.

Principal Water Resources Control Engineer and Chief, Operations Branch, Division of Water Quality, State Water Resources Control Board

- Managed the SWRCB program on surface water and groundwater regulatory and planning programs including the NPDES Program.
- Lead responsibility for developing the SWRCB Groundwater Protection Strategy
- Supervised the development of a Forest Practice Rules Assessment report in 1986.
- Managed the Section 205J; Water Quality Management Planning program.
- Supervised the development of the first non-point source project.

State Water Resources Control Board, Division of Loans and Grants, Sacramento, California.

- Served consecutively as Senior WQC Engineer, Supervising WRC Engineer, Assistant Division Chief, and Principal WRC Engineer.
- Held an integral role in the development and implementation of the California Clean Water Grants Program from 1970 to 1984. Developed the Agreement-in-Principle and 26 functional subagreements which delegated the program from the USEPA to the State of California. The California Program was the National pilot program.
- From 1979-1984, served as the Chief Engineer for the programs and had the responsibility for all the final SWRCB engineering decisions for \$500 million per year in grant-funded wastewater projects.

Department of Public Health, Berkeley, California.

- As a staff engineer (Junior Civil, Assistant Sanitary Engineer and Associate Sanitary Engineer) conducted sanitary engineering and public health studies relative to drinking water supplies, sewage treatment, water quality protection, solid waste management, and toxic waste.
- Served as the "Task Leader" and the principal author of the comprehensive study and report, "Solid Waste and Water Quality - A Study of Solid Waste Disposal and Their Effect on Water Quality in the San Francisco Bay-Delta Area." The report was published by the California DPH in 1968.
- Served as the state's expert witness for NPDES permit violations relative to wastewater runoff into Lake Tahoe. This included two major court actions. Participated in numerous water quality studies and regulatory issues related to Lake Tahoe.

Selected Committee Memberships, Reports, and Papers

- Member, California Redevelopment Association (CRA) Brownfields Committee (1997).
- Member, Department of Toxic Substances Control - Site Mitigation Advisory Brownfields Subcommittee (1997).
- Member of California Department of Health Services Public Policy Committee for their Source Water Assessment and Protection Program (1997).
- CalEPA Private Site Manager's Program Advisory Committee (1997).
- Served for 5 years on the Western Governor's Association Mine Waste Task Force.
- Served for 3 years on the U.S. EPA's "Policy Dialogue Committee on Mining Waste."
- Member of California Hazardous Waste Strike Force, 1992-1994.
- Member of California Department of Toxic Substances Control Site Mitigation Advisory Committee, 1990-1994.
- Presented paper "Role of Regulatory Agencies in Soil and Groundwater Remediation," on November 8, 1994 at the UC Los Angeles Extension Short Course on Soil and Groundwater Remediation.
- Presented paper "The Role of Groundwater Quality Protection in Hazardous Substance Control," on February 19, 1992 at the UC Extensions Seminar, "Toxic Substances and Hazardous Waste - a 1992 Legislative and Regulatory Update.
- Presented paper "Toxic Air Emission from Publicly Owned Treatment Works" in September 1990 in Washington D.C. at the USEPA/Water Pollution Control Federation workshop on Air Toxic Emission and Publicly Owned Treatment Works.
- Workshop Program Chair for Western States Water Council July 25-28, 1989 Non-Point Source Pollution Control Workshop.
- Presented paper "How States Define Non-Point Sources" at the Water Pollution Control Federation Pre-conference Workshop, October 14, 1989, San Francisco.
- Developed and facilitated a three-day seminar for UC Davis Extension on Ground Water Quality Planning and Policy, January 12-14, 1987.
- Presented paper "Development of a California Groundwater Quality Protection Strategy," on September 18, 1985 at the Western Regional Groundwater Conference in Salt Lake City, Utah.
- Taught "Politics of Water in California," for the Government Department at California State University, Sacramento, 1975.

- Co-author of 1969 California Department of Public Health Report, "A Study of Future Solid Waste Management in the Lake Tahoe Area."
- Member of the Lahontan Regional Water Quality Control Board Task Force on Lake Tahoe Water Quality which developed the June 1966, "Water Quality Control Policy-Lake Tahoe."
- Prepared "Organic Quality of the Sacramento River and Delta Waters," published in 1964 by the California Department of Public Health (DPH).

Education and Professional Licenses

Masters of Public Administration, California State University at Sacramento (1979)

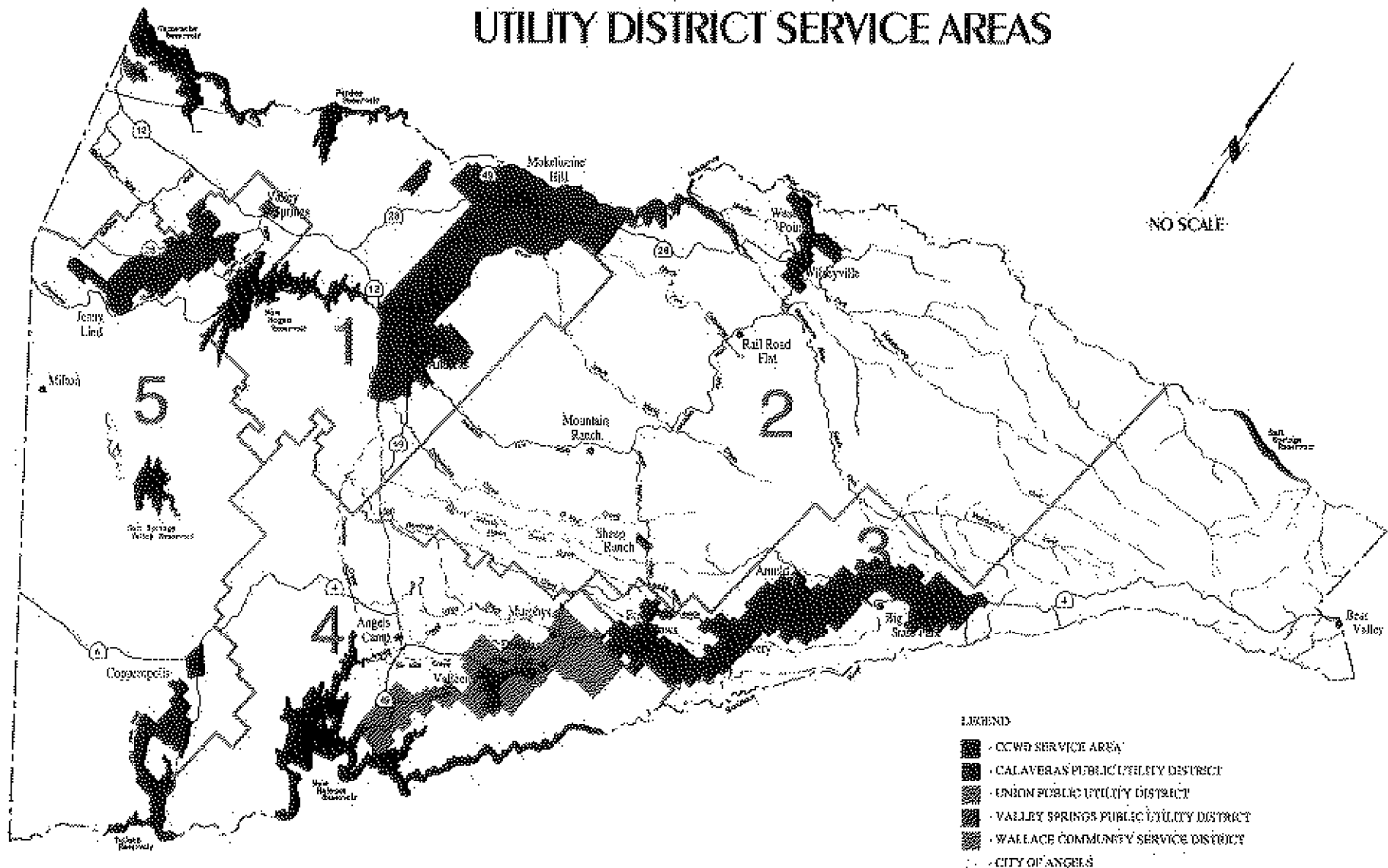
Bachelor of Science, Civil Engineering, South Dakota State University (1960)

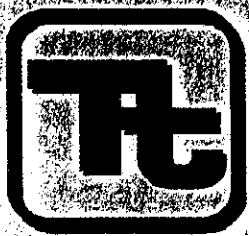
California Professional Civil Engineer, License No. C17438

**Calaveras County Watershed Managment and Stewardship Program
(CCWMS)
Workplan**

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CALAVERAS COUNTY UTILITY DISTRICT SERVICE AREAS

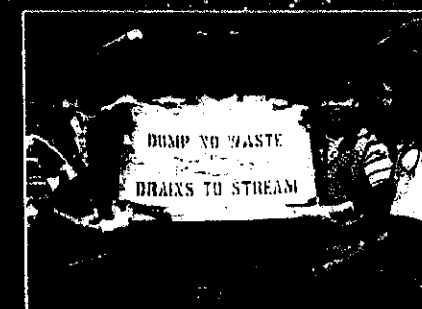




Tetra Tech, Inc.

Public Involvement Services for Watershed Protection

- ***Watershed Planning***
- ***Training***
- ***Facilitation***
- ***Communication and Outreach
Campaigns***
- ***Outreach Materials and
Graphic Design***
- ***Web Site Design and Site
Maintenance***



Watershed Protection

Communication and Outreach Campaigns

How do we get our message to all of the different audiences in the community?

Tetra Tech works with communities to design effective outreach campaigns that target messages to specific audiences to achieve the desired outcome—awareness, education, or action. Tetra Tech uses a variety of approaches such as mass media, targeted outreach materials, demonstration projects, field days, and multimedia presentations to create successful outreach campaigns on a variety of watershed issues.

Outreach Materials and Graphic Design

How do we make our outreach materials more exciting to get our audiences to read them?

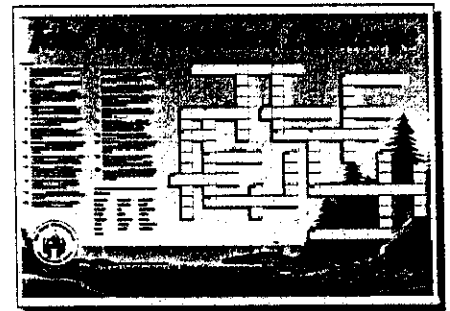
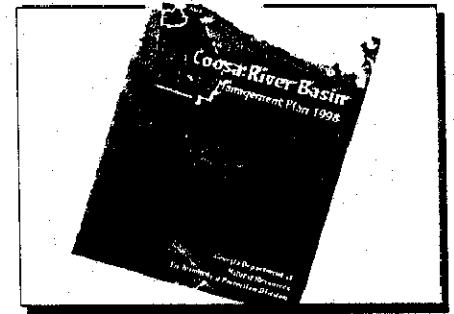
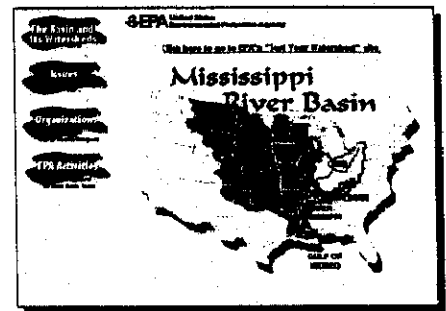
Tetra Tech provides full-scale graphic design and editing services to produce materials that are technically accurate and visually appealing. These materials include program documents as well as traditional outreach materials like newsletters, brochures, fact sheets, calendars, presentations, and posters. Tetra Tech uses innovative approaches to convey watershed information. For example, instead of developing a fact sheet on nonpoint source pollution, Tetra Tech prepared a 3- by 4-ft laminated crossword puzzle. People could use dry-erase markers to complete the puzzle by answering questions on watershed pollution.

Web Site Design and Maintenance

How can we use the Internet to educate the community on watershed issues?

Tetra Tech provides complete web site design services, as well as technical support to translate technical data and display it in a format that will be understood by nontechnical audiences. Tetra Tech combines its technical "know-how" with graphic design expertise to create web sites that are dynamic yet uncluttered.

Once a web site has been developed, it's important to promote the Web address to draw people to the site. The site must also be maintained so it constantly provides new information. Tetra Tech provides Internet-related support such as converting documents into HTML and PDF formats, preparing on-line registration forms for meetings, developing and maintaining list servers, and preparing multimedia presentations to showcase new web sites.



Watershed Protection

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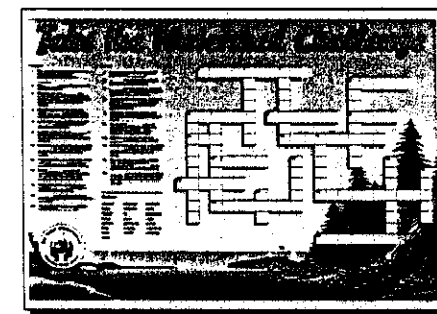
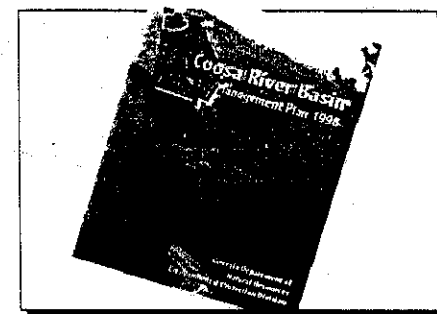
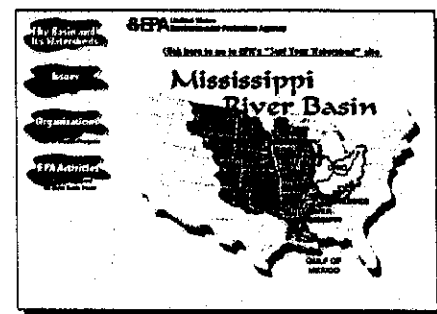
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Tetra Tech Offices

Corporate Office

630 North Rosemead Blvd.
Pasadena, California
Arizona

Phoenix
Tempe
Tucson

California

Huntington Beach
Lancaster
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Sacramento
San Bernardino
San Diego
San Francisco
Santa Barbara
Ventura

Colorado

Boulder
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Kentucky

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Louisiana

Baton Rouge

Maryland

Baltimore

Massachusetts

Boston
Harvard

Minnesota

St. Paul

Montana

Helena

New Jersey

Freehold
Mount Arlington

New Mexico

Albuquerque
Las Cruces
Los Alamos

Nevada

Las Vegas
Reno

Ohio

Cincinnati

Oklahoma

Oklahoma City

Oregon

Portland

Pennsylvania

Philadelphia
Pittsburgh

South Carolina

Aiken
Charleston

Tennessee

Nashville

Texas

Amarillo
Dallas
Houston

Utah

Salt Lake City

Virginia

Alexandria
Fairfax
Sterling
Vienna
Williamsburg

Washington

Kingston
Redmond
Seattle

Wisconsin

Milwaukee

Philippines

Manila

For more information, contact
Charlie MacPherson at
(703) 385-6000 or
macphch@tetratech-ffx.com.

Relevant Experience

Watershed Management Plan for Clermont County, Ohio

Provided technical and programmatic support to develop a comprehensive watershed management plan for Clermont County. Conducted focus groups to identify priority issues and developed a stakeholder involvement program.

Getting In Step Training Series

Conducted more than 50 outreach training sessions on topics including developing outreach campaigns, designing effective materials, increasing stakeholder involvement, and working with the news media. Prepared a companion guide, *Getting in Step—A Guide to Effective Outreach in Your Watershed*, which is in its third printing.

Basin Management for the State of Georgia

Facilitated the development and implementation of a river basin management planning framework for the state of Georgia that coordinates the efforts of many state agencies to better protect and restore Georgia's water resources.

Coastal Outreach Strategy for the States of Delaware, Pennsylvania, and New Jersey

Developed a comprehensive outreach strategy to increase awareness of coastal nonpoint source pollution. Developed outreach materials that included refrigerator magnets, calendars, scripted slide shows, laminated crossword puzzle posters, brochures on sewage pump-out facilities, tote bags, and fact sheets.

Multimedia Presentations on EPA's Office of Water Web Sites

Developed multimedia presentations showcasing EPA's Office of Water web sites. Presentations included video clips of community residents, narrated scripts, screen captures of the Web Sites, and accompanying brochures.

Interactive Web Site for EPA's Office of Enforcement

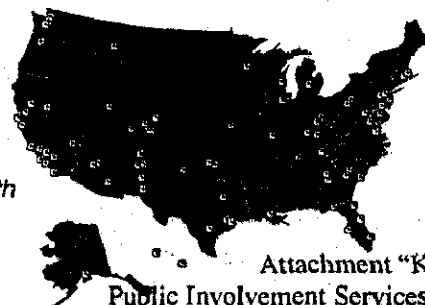
Developed a web site linked to a database for EPA's Office of Enforcement and Compliance Assurance to provide communities with timely information on noncompliance events related to NPDES permits. The web site allows permittees to submit information on line, automatically sends e-mails to notify enforcement personnel, and alerts USGS researchers to conduct additional monitoring.

Source Water Protection Seminars

Conducted training for utilities across the country on the recent source water protection requirements under the Safe Drinking Water Act, including submitting the Consumer Confidence Reports.

About Tetra Tech

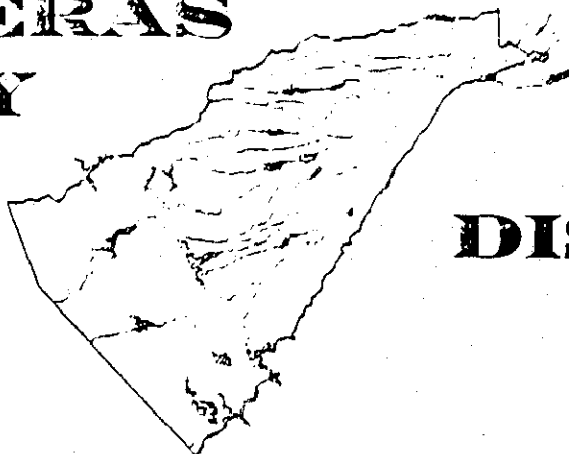
Tetra Tech is a publicly owned, full-service environmental engineering and sciences firm. Tetra Tech has more than 100 offices nationwide developing innovative solutions to complex environmental problems. Clients include federal, state, and local government agencies and private clients. The offices in Fairfax, Virginia, Owings Mills, Maryland, and Research Triangle Park, North Carolina have more than 80 staff members specializing in all phases of watershed management. Disciplines represented include engineering (civil, chemical, environmental, agricultural), hydrology, chemistry, toxicology, ecology, biology, information sciences, public health management, public outreach, geology, oceanography, urban and master planning, and graphic design.



Attachment "K"

Public Involvement Services for Watershed

CALAVERAS COUNTY



WATER DISTRICT

DIRECTORS

BOB GEISZLER/District 1
San Andreas/Mokelumne Hill
LEROY FONCECA/District 2
West Point/Mountain Ranch
DICK WEINKLE/District 3
Arnold/Avery/Forest Meadows
DON DEEM/District 4
Angels Camp/Vallecito/Murphys
LORRI ROLLINS/District 5
Valley Springs/Copper Cove
SIMON GRANVILLE
General Manager

BUSINESS OFFICE

423 EAST ST. CHARLES STREET
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
(209) 754-3543
FAX (209) 754-1069

April 13, 1999

Mr. Jack L. Kuhl, President
Calaveras County Farm Bureau
PO Box 598
San Andreas, CA 95249

RE: Filing of Grant Applications for CALFED Bay-Delta Program for Ecosystem
Restoration Projects and Programs

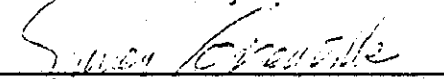
Mr. Kuhl:

Calaveras County Water District (CCWD) is applying for grant funds through the CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs. The river basin watersheds within Calaveras County and ultimately the Bay-Delta is of vital concern to all of us. CCWD is proposing that it take the lead position to develop and implement a Watershed Management and Stewardship Program within Calaveras County covering the Calaveras, Stanislaus and Mokelumne Rivers as well as its tributaries.

CCWD is respectfully requesting your written support of the program. Additionally, Calaveras County will be requested to participate in the Management and Stewardship Program. Specifically, the program will facilitate coordination of efforts among agencies, public and private organizations as well as landowners; develop consistent, organized monitoring and assessment protocols while supporting education and outreach involving the Citizens of Calaveras County and neighboring counties. Additionally, efforts will be expended to ensure that a high water quality standard is maintained in our watersheds and ultimately contributing to the well being of the water resources of the Bay-Delta and California as a whole.

We appreciate your support and looks forward to working with you on this watershed management project in the future

Sincerely
Calaveras County Water District


Simon Granville
General Manager

Attachment "L"
Letters of Notification -
CCWMS Program

CALAVERAS COUNTY



WATER DISTRICT

DIRECTORS

BOB GEISZLER/District 1
San Andreas/Mokelumne Hill
LEROY FONCECA/District 2
West Point/Mountain Ranch
DICK WEINKLE/District 3
Arnold/Avery/Forest Meadows
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Valley Springs/Copper Cove
SIMON GRANVILLE
General Manager

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423 EAST ST. CHARLES STREET
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
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April 13, 1999

Mr. Gary Golfe
Calaveras Public Utility District
PO Box 666
San Andreas, CA 95249

RE: Filing of Grant Applications for CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs

Gary,

Calaveras County Water District (CCWD) is applying for grant funds through the CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs. The river basin watersheds within Calaveras County and ultimately the Bay-Delta is of vital concern to all of us. CCWD is proposing that it take the lead position to develop and implement a Watershed Management and Stewardship Program within Calaveras County covering the Calaveras, Stanislaus and Mokelumne Rivers as well as its tributaries.

CCWD is respectfully requesting your written support of the program. Additionally, Calaveras County will be requested to participate in the Management and Stewardship Program. Specifically, the program will facilitate coordination of efforts among agencies, public and private organizations as well as landowners; develop consistent, organized monitoring and assessment protocols while supporting education and outreach involving the Citizens of Calaveras County and neighboring counties. Additionally, efforts will be expended to ensure that a high water quality standard is maintained in our watersheds and ultimately contributing to the well being of the water resources of the Bay-Delta and California as a whole.

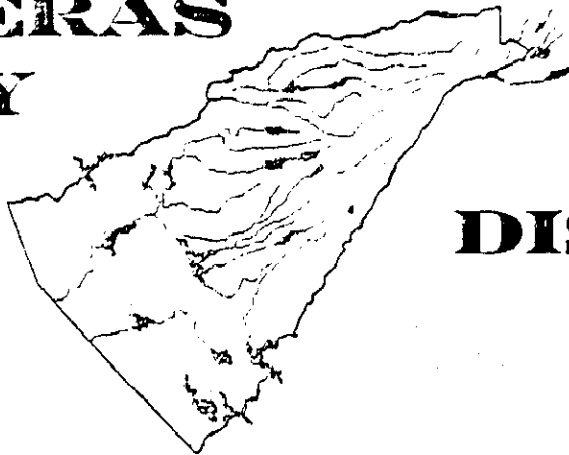
We appreciate your support and look forward to working with you on this watershed management project in the future

Sincerely
Calaveras County Water District

Simon Granville
Simon Granville
General Manager

Attachment "L"
Letters of Notification -
CCWMS Program

CALAVERAS COUNTY



WATER DISTRICT

DIRECTORS

BOB GEISZLER/District 1
San Andreas/Mokelumne Hill
LEROY FONCECA/District 2
West Point/Mountain Ranch
DICK WEINKLE/District 3
Arnold/Avery/Forest Meadows
DON DEEM/District 4
Angels Camp/Vallecito/Murphys
LORRI ROLLINS/District 5
Valley Springs/Copper Cove
SIMON GRANVILLE
General Manager

BUSINESS OFFICE

423 EAST ST. CHARLES STREET
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
(209) 754-3543
FAX (209) 754-1069

April 13, 1999

Mr. Tim Shearer, Manager
City of Angels Camp
P.O. Box 667
Angels Camp, CA 95222

RE: Filing of Grant Applications for CALFED Bay-Delta Program for Ecosystem
Restoration Projects and Programs

Tim,

Calaveras County Water District (CCWD) is applying for grant funds through the CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs. The river basin watersheds within Calaveras County and ultimately the Bay-Delta is of vital concern to all of us. CCWD is proposing that it take the lead position to develop and implement a Watershed Management and Stewardship Program within Calaveras County covering the Calaveras, Stanislaus and Mokelumne Rivers as well as its tributaries.

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We appreciate your support and look forward to working with you on this watershed management project in the future

Sincerely
Calaveras County Water District


Simon Granville
General Manager

CALAVERAS COUNTY



WATER DISTRICT

DIRECTORS

BOB GEISZLER/District 1
San Andreas/Mokelumne Hill
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SIMON GRANVILLE
General Manager

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423 EAST ST. CHARLES STREET
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
(209) 754-3543
FAX (209) 754-1069

April 13, 1999

Mr. Ben L. Del Villar
Forest Supervisor
US Department of Agriculture
Stanislaus National Forest Service
19777 Greenley Road
Sonora, CA 95370

RE: Filing of Grant Applications for CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs

Mr. Del Villar

Calaveras County Water District (CCWD) is applying for grant funds through the CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs. The river basin watersheds within Calaveras County and ultimately the Bay-Delta is of vital concern to all of us. CCWD is proposing that it take the lead position to develop and implement a Watershed Management and Stewardship Program within Calaveras County covering the Calaveras, Stanislaus and Mokelumne Rivers as well as its tributaries.

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We appreciate your support and look forward to working with you on this watershed management project in the future

Sincerely
Calaveras County Water District

Simon Granville
General Manager

Attachment "L"
Letters of Notification -
CCWMS Program

CALAVERAS COUNTY



WATER DISTRICT

DIRECTORS

BOB GEISLER/District 1
San Andreas/Mokelumne Hill
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LORRI ROLLINS/District 5
Valley Springs/Copper Cove
SIMON GRANVILLE
General Manager

BUSINESS OFFICE

423 EAST ST. CHARLES STREET
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
(209) 754-3543
FAX (209) 754-1069
April 13, 1999

Mr. Del Albright, Ranger Unit Chief
Department of Forestry and Fire Protection
Tuolumne/Calaveras Ranger Unit
Star Route #1, 785 Mountain Ranch Road
San Andreas, CA 95249

RE: Filing of Grant Applications for CALFED Bay-Delta Program for Ecosystem
Restoration Projects and Programs

Del:

Calaveras County Water District (CCWD) is applying for grant funds through the CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs. The river basin watersheds within Calaveras County and ultimately the Bay-Delta is of vital concern to all of us. CCWD is proposing that it take the lead position to develop and implement a Watershed Management and Stewardship Program within Calaveras County covering the Calaveras, Stanislaus and Mokelumne Rivers as well as its tributaries.

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We appreciate your support and look forward to working with you on this watershed management project in the future

Sincerely
Calaveras County Water District


Simon Granville
General Manager

Attachment "L"
Letters of Notification -
CCWMS Program

CALAVERAS COUNTY



WATER DISTRICT

DIRECTORS

BOB GEISLER/District 1
San Andreas/Mokelumne Hill
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LORRI ROLLINS/District 5
Valley Springs/Copper Cove
SIMON GRANVILLE
General Manager

BUSINESS OFFICE

423 EAST ST. CHARLES STREET
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
(209) 754-3543
FAX (209) 754-1069

April 13, 1999

Brent Harrington, County Administrative Officer
Calaveras County Government Center
891 Mountain Ranch Road
San Andreas, CA 95249

RE: Filing of Grant Applications for CALFED Bay-Delta Program for Ecosystem
Restoration Projects and Programs

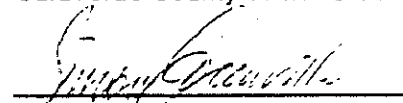
Brent:

Calaveras County Water District (CCWD) is applying for grant funds through the CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs. The river basin watersheds within Calaveras County and ultimately the Bay-Delta is of vital concern to all of us. CCWD is proposing that it take the lead position to develop and implement a Watershed Management and Stewardship Program within Calaveras County covering the Calaveras, Stanislaus and Mokelumne Rivers as well as its tributaries.

CCWD is respectfully requesting, on behalf of Calaveras County, your written support of the program. Additionally, Calaveras County will be requested to participate in the Management and Stewardship Program. Specifically, the program will facilitate coordination of efforts among agencies, public and private organizations as well as landowners; develop consistent, organized monitoring and assessment protocols while supporting education and outreach involving the Citizens of Calaveras County and neighboring counties. Additionally, efforts will be expended to ensure that a high water quality standard is maintained in our watersheds and ultimately contributing to the well being of the water resources of the Bay-Delta and California as a whole.

We appreciate your support and look forward to working with you on this watershed management project in the future

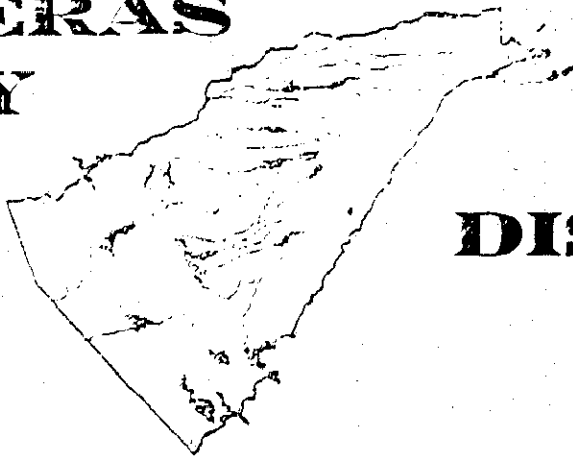
Sincerely
Calaveras County Water District


Simon Granville
General Manager

cc: Calaveras County Board of Supervisors

Attachment "L"
Letters of Notification -
CCWMS Program

CALAVERAS COUNTY



WATER DISTRICT

DIRECTORS

BOB GEISZLER/District 1
San Andreas/Mokelumne Hill
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Valley Springs/Copper Cove
SIMON GRANVILLE
General Manager

BUSINESS OFFICE

423 EAST ST. CHARLES STREET
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
(209) 754-3543
FAX (209) 754-1069

April 13, 1999

Ms. Diana Ponte, Manager
Valley Springs Public Utility District
PO Box 284
Valley Springs, CA 95249

RE: Filing of Grant Applications for CALFED Bay-Delta Program for Ecosystem
Restoration Projects and Programs

Diana,

Calaveras County Water District (CCWD) is applying for grant funds through the CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs. The river basin watersheds within Calaveras County and ultimately the Bay-Delta is of vital concern to all of us. CCWD is proposing that it take the lead position to develop and implement a Watershed Management and Stewardship Program within Calaveras County covering the Calaveras, Stanislaus and Mokelumne Rivers as well as its tributaries.

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We appreciate your support and look forward to working with you on this watershed management project in the future

Sincerely
Calaveras County Water District

Simon Granville
General Manager

Attachment "L"
Letters of Notification -
CCWMS Program

CALAVERAS COUNTY



WATER DISTRICT

DIRECTORS

BOB GEISZLER/District 1
San Andreas/Mokelumne Hill
LEROY FONCECA/District 2
West Point/Mountain Ranch
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Arnold/Avery/Forest Meadows
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LORRI ROLLINS/District 5
Valley Springs/Copper Cove
SIMON GRANVILLE
General Manager

BUSINESS OFFICE

423 EAST ST. CHARLES STREET
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
(209) 754-3543
FAX (209) 754-1069

April 13, 1999

Mr. Bill Eltringham, Manager
Union Public Utility District
P.O. Box 429
Murphys, CA 95247

RE: Filing of Grant Applications for CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs

Bill,

Calaveras County Water District (CCWD) is applying for grant funds through the CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs. The river basin watersheds within Calaveras County and ultimately the Bay-Delta is of vital concern to all of us. CCWD is proposing that it take the lead position to develop and implement a Watershed Management and Stewardship Program within Calaveras County covering the Calaveras, Stanislaus and Mokelumne Rivers as well as its tributaries.

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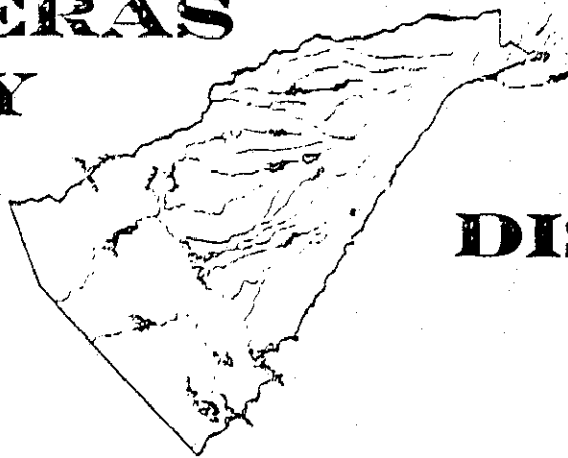
We appreciate your support and look forward to working with you on this watershed management project in the future

Sincerely
Calaveras County Water District

Simon Granville
General Manager

Attachment "L"
Letters of Notification -
CCWMS Program

CALAVERAS COUNTY



WATER DISTRICT

DIRECTORS

BOB GEISZLER/District 1
San Andreas/Mokelumne Hill
LEROY FONCECA/District 2
West Point/Mountain Ranch
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LORRI ROLLINS/District 5
Valley Springs/Copper Cove
SIMON GRANVILLE
General Manager

BUSINESS OFFICE

423 EAST ST. CHARLES STREET
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
(209) 754-3543
FAX (209) 754-1069

April 13, 1999

Mr. Gary Golfe
Calaveras Public Utility District
PO Box 666
San Andreas, CA 95249

RE: Filing of Grant Applications for CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs

Gary,

Calaveras County Water District (CCWD) is applying for grant funds through the CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs. The river basin watersheds within Calaveras County and ultimately the Bay-Delta is of vital concern to all of us. CCWD is proposing that it take the lead position to develop and implement a Watershed Management and Stewardship Program within Calaveras County covering the Calaveras, Stanislaus and Mokelumne Rivers as well as its tributaries.

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We appreciate your support and look forward to working with you on this watershed management project in the future

Sincerely
Calaveras County Water District

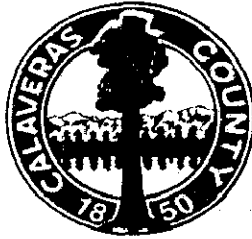
Simon Granville
Simon Granville
General Manager

Attachment "L"
Letters of Notification -
CCWMS Program

CALAVERAS COUNTY

BRENT HARRINGTON

County Administrative Officer



ADMINISTRATIVE OFFICE

April 15, 1999

Mr. Simon Granville
General Manager
Calaveras County Water District
P.O. Box 846
San Andreas, CA 95249

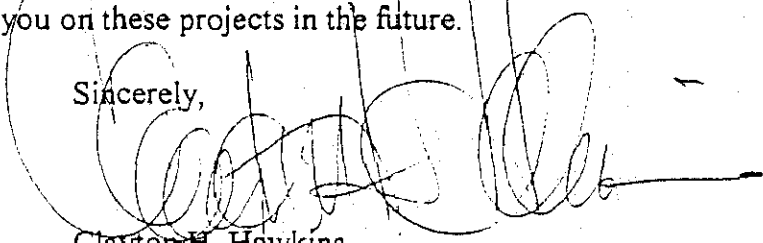
RE: Filing of Grant Applications for CALFED Bay-Delta Program for Ecosystem
Restoration Projects and Programs

Mr. Granville:

I understand that Calaveras County Water District is applying for grant funds through the CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs.

Calaveras County supports the request for funds to develop watershed management plans and studies for beneficial projects within the County. Additionally, Calaveras County would like to participate in the Local Watershed Stewardship Program. Participating together we can consolidate our efforts while accomplishing a consistent and better management program of our watersheds. We look forward to working with you on these projects in the future.

Sincerely,

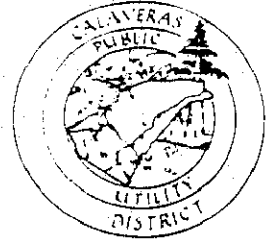

Clayton H. Hawkins
Deputy County Administrative Officer

Attachment "M"
Letters of Support and Interst -
CCWMS Program

CALAVERAS PUBLIC UTILITY DISTRICT

DIRECTORS
Robert Jaich
John Lavaroni
Charlie Moore
Gerald Newman
David J. Ortegell
MANAGER
Gary L. Goffe

152 E. St. Charles Street
P. O. Box 666
SAN ANDREAS, CALIFORNIA 95249
TELEPHONE: 209-754-3281



April 14, 1999

Mr. Simon Granville
General Manager
Calaveras County Water District
PO Box 846
San Andreas, CA 95249

RE: Filing of Grant Applications for CALFED Bay-Delta Program for
Ecosystem Restoration Projects and Programs

Simon,

It is our understanding that CCWD is applying for grant funds through the CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs.

CPUD is very concerned about the river basin watersheds within Calaveras County and ultimately the Bay-Delta. It is imperative that ecological health is maintained and water management improved to ensure the well being of the watersheds for the Citizens of Calaveras County and ultimately the aquatic and terrestrial habitat. Development and agriculture within these watersheds is expanding and will continue to expand in Calaveras County. Restoration, protection and the provision of high water quality as well as the reliability of these watersheds is of great importance to the community and the State as a whole.

CPUD supports the request for funds to develop watershed management plans and studies for beneficial projects within the river watersheds of Calaveras County. Additionally, CPUD would actively like to participate in the Local Watershed Stewardship Program. Participating together we can consolidate our efforts while accomplishing a consistent and better management program of our watersheds. We look forward to working with you on these projects in the future.

Sincerely,

A handwritten signature in dark ink, appearing to read "Gary L. Goffe".
Gary L. Goffe, Manager

Attachment "M"
Letters of Support and Interest -
CCWMS Program



CALAVERAS COUNTY FARM BUREAU

P. O. Box 598

San Andreas, CA 95249-0598

April 13, 1999

Mr. Simon Granville
General Manager
Calaveras County Water District
PO Box 846
San Andreas, CA 95249-0846

RE: Filing of Grant Applications for CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs

Dear Mr. Granville,

It is our understanding that CCWD is applying for grant funds through the CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs. The Farm Bureau is very concerned about the river basin watersheds within Calaveras County and ultimately the Bay-Delta. It is imperative that the ecological health be maintained and water management is improved to ensure the well being for the Citizens, the Agricultural community and ultimately the aquatic and terrestrial habitat. The agricultural use within these watersheds is expanding and will continue to expand on the agricultural base in Calaveras County. Preserving the quality as well as the reliability of these watersheds is of great importance to the community and the Farm Bureau.

The Farm Bureau supports the request for funds to develop watershed management plans and studies for beneficial projects within the river watersheds of Calaveras County. Additionally, the Farm Bureau would actively like to participate in the Local Watershed Stewardship Program. Participating together we can consolidate our efforts while accomplishing a consistent and better management program of our watersheds. We look forward to working with you on these projects in the future.

Kindest regards,

Stuart Mast, President
Calaveras County Farm Bureau

SM/tt

Attachment "M"
Letters of Support and Interst -
CCWMS Program

Phone: 209/736-9392
Fax: 209/736-9392
Email: tinat@goldrush.com



DEPARTMENT OF FORESTRY AND FIRE PROTECTION

TUOLUMNE/CALAVERAS RANGER UNIT
785 MOUNTAIN RANCH ROAD
SAN ANDREAS CALIFORNIA 95249-9708
TELEPHONE: (209) 754-3831
FAX: (209) 754-1959

Ref: 5270

April 15, 1999



Mr. Simon Granville, General Manager
Calaveras County Water District
P O Box 848
San Andreas, CA 95249

Dear Mr. Granville:

Reference is made to CCWD's application for grant funds through the CALFED Bay-Delta Program for Ecosystem Restoration Projects and Programs.

As you know, the CDF has been working on the development of our Fire Plan, and implementing our projects for mitigation of impacts on a planning watershed basis. We share many of the same concerns, on the protection and enhancement of the watershed within Calaveras County. In that light, we support your efforts in obtaining grant funds for this important work.

CDF will actively participate in the Local Watershed Stewardship Program. In this way, we can address the issues of concern to all of us more effectively. We are looking forward to working with you.

Sincerely,

Del Albright
Ranger Unit Chief
Tuolumne/Calaveras Ranger Unit

By

William E. Schultz
William E. Schultz
DIVISION CHIEF
Pre-Fire Management

BES:alr

Attachment "M"
Letters of Support and Interest -
CCWMS Program



United States
Department of
Agriculture

Forest
Service

Stanislaus National Forest

19777 Greenley Road
Sonoma, CA 95370
(209) 532-3671
FAX: (209) 533-1890
TTY/TDD: (209) 533-0765
<http://www.r5.fs.fed.us/stanislaus>

File Code: 2520

Date: APR 15 1999

Mr. Simon Granville, General Manager
Calaveras County Water District
PO Box 846
San Andreas, CA 95249

Dear Mr. Granville:

I am writing in support of your CALFED grant application for local watershed stewardship to protect and improve water quality. Insofar as the watersheds encompassed by your project contain national forest lands, the project will ultimately benefit the Stanislaus National Forest.

If your proposal is successful in obtaining CALFED funding, we look forward to working with you on the project in the coming years.

Sincerely,


BEN L. DEL VILLAR
Forest Supervisor

Attachment "M"
Letters of Support and Interest -
CCWMS Program



Caring for the Land and Serving People

Printed on Recycled Paper



**CALAVERAS COUNTY WATER DISTRICT
CALAVERAS COUNTY WATER SOURCE MANAGEMENT PROGRAM**

Task Name	Task Cost	Total Costs
Task A: Calaveras River Source Water Protection	\$ 100,000	
Task B: Stainslaus River Study - Calaveras County Source Water Protection	\$ 100,000	
Task C: Upper Mokelumne River - Calaveras County Source Water Protection	\$ 100,000	
Task D: Intergration of SWRCB, DHS with CALFED		
Task D-1 - 2.1.2. Watershed Stewardship	\$ 100,000	
Task D-2 - 2.1.3. Watershed Restoration Projects	\$ 25,000	
Task D-3 - Element A - Coordination and Assistance	\$ 50,000	
Task D-4 - Element B - Adaptive Management and Monitoring	\$ 25,000	
Task D-5 - Element C - Education and Outreach	\$ 25,000	
Task D-6 - Element D - Integration with other CALFED Programs	\$ 25,000	
Task D-7 - Element E - Watershed Processes and Relationships	\$ 50,000	
Task E: Calaveras River Anadromous Fish Restsoration Project		
Task E-1 - Conjunctive Water Use Study Lower Calaveras River	\$ 50,000	
Task E-2 - Conjunctive Water Use Study Lower Calaveras River	\$ 100,000	
Task E-3 - Conjunctive Water Use Study Lower Calaveras River	\$ 50,000	
Task F - Program Management	\$ 50,000	
Sub-Total		\$ 850,000
CCWD - Local Share	\$ 150,000	
CALFED - Requested Share		\$ 700,000